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AUTHOR Kopp, Kathleen
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ABSTRACT

This module, one in a series of performance-based teacher education learning packages, focuses on a specific skill that vocational educators need to create appropriate learning environments and to plan and manage instruction that is well-suited to the learning and psychological needs of today's adults. The purpose of the module is to teach instructors how to evaluate learners' progress in meeting specified objectives. Introductory material provides terminal and enabling objectives, a list of resources, and general information. The main portion of the module includes three learning experiences based on the enabling objectives: (1) demonstrate knowledge of the rationale for and factors involved in student evaluation; (2) critique a test; and (3) critique a case study on developing evaluation plans for adult learners. Each learning experience presents activities with information sheets, samples, worksheets, checklists, and self-checks with model answers. Optional activities are provided. Completion of these three learning experiences should lead to achievement of the terminal objective through the fourth and final learning experience that requires (1) an actual teaching situation in which to evaluate the performance of adults, and (2) a teacher performance assessment by a resource person. An assessment form is included. (YLB)

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Evaluate the Performance of Adults

AMERICAN ASSOCIATION FOR VOCATIONAL INSTRUCTIONAL MATERIALS
The University of Georgia
120 Driftmier Engineering Center / Athens GA 30602

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THE OHIO STATE UNIVERSITY
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FOREWORD

This module is one of a series of over 130 performance-based teacher education (PBTE) learning packages focusing upon specific professional competencies of occupational instructors (teachers, trainers). The competencies upon which these modules are based were identified and verified through research as being important to successful teaching. The modules are suitable for the preparation of instructors in all occupational areas.

Each module provides learning experiences that integrate theory and application; each culminates with criterion-referenced assessment of the instructor's performance of the specified competency. The materials are designed for use by teachers-in-training working individually or in groups under the direction and with the assistance of teacher educators or others qualified to act as resource persons. Resource persons should be skilled in the teacher competencies being developed and should be thoroughly oriented to PBTE concepts and procedures before using these materials.

The design of the materials provides considerable flexibility for planning and conducting performance-based training programs for preservice and inservice instructors, as well as business-industry-labor trainers, to meet a wide variety of individual needs and interests. The materials are intended for use by local education agencies, postsecondary institutions, state departments of education, universities and colleges, and others responsible for the professional development of instructors.

The PBTE modules in Category N—Teaching Adults—are designed to enable adult instructors to create appropriate learning environments and to plan and manage instruction that is well suited to the learning and psychological needs of today's adults. The modules are based upon 50 competencies identified and verified as unique and important to the instruction of adults.

Many individuals have contributed to the research, development, field review, and revision of these training materials. Appreciation is extended to the following individuals who, as members of the DACUM analysis panel, assisted National Center staff in the identification of the competency statements upon which this category of modules is based: Doe Hentschel, State University of New York at Brockport; David Holmes, Consortium of the California State University; Joanne Jorz, JWK International Corporation, Virginia; Jean Lowe, Fairfax County Public Schools, Virginia; Jim Menapace, BOC/Lansing-General Motors, Michigan; Norma Milanovich, University of New Mexico; Cuba Miller, Sequoia Adult School, California; Donald Mocker, University of Missouri; and Michael A. Spewock, Indiana University of Pennsylvania.

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THE NATIONAL CENTER FOR RESEARCH IN VOCATIONAL EDUCATION
THE OHIO STATE UNIVERSITY
1960 KENNY ROAD · COLUMBUS, OHIO 43210

The National Center for Research in Vocational Education's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning, preparation, and progression. The National Center fulfills its mission by:

- Generating knowledge through research.
- Developing educational programs and products.
- Evaluating individual program needs and outcomes.
- Providing information for national planning and policy.
- Installing educational programs and products.
- Operating information systems and services.
- Conducting leadership development and training programs.

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The American Association for Vocational Instructional Materials (AAVIM) is a nonprofit national institute.

The institute is a cooperative effort of universities, colleges and divisions of vocational and technical education in the United States and Canada to provide for excellence in instructional materials.

Direction is given by a representative from each of the states, provinces and territories. AAVIM also works closely with teacher organizations, government agencies and industry.

MODULE
N-6

Evaluate the Performance of Adults

INTRODUCTION

Evaluation is an integral part of the teaching/learning process. It starts when you determine the training needs of your students (Module N-3) and develop instructional objectives designed to meet those training needs (Module N-4). This is the **preassessment** and planning phase of instruction.

In this module, the focus is on evaluating learners' **progress** in meeting the specified objectives. Student progress needs to be evaluated frequently so both you and your students know what they have accomplished and what still needs to be done. Student progress also needs to be evaluated frequently so students receive the positive feedback needed to stay motivated.

Through **postassessment**—end-of-course evaluation—you can verify that all objectives have (or have not) been met according to specified standards.

Preassessment gives you a **starting** reference point. You can measure "progress" because you know where your students were when they started. Performance objectives give you an **ending** reference point. You know whether students have accomplished what they set out to accomplish because their objectives have been clearly stated, in observable terms.

In short, through an effective evaluation procedure, you can answer a number of essential instructional questions: **What** is being learned? **How well** is it being learned? **How much** is being learned? **How effective** are the learning experiences?

Such questions need to be answered regardless of the ages of the students involved. Adults tend to be utility-oriented learners who bring specific needs, objectives, and goals to the learning situation. It is therefore important not only that their needs be met, but that they have tangible proof of the dividends received from their investment of time and energy in the learning program. There are a variety of evaluation strategies that can help provide this proof.

The benefits of employing an effective evaluation procedure are at least fourfold: (1) you gain important information on learners' progress and can make appropriate adjustments to your instructional plans; (2) learners obtain information about their achievement in the program; (3) learners develop skills in evaluating their own work more objectively, thus gaining a valuable tool for future use; and (4) decision makers secure information they need to make decisions about whether to continue, restructure, or discontinue particular programs.

In this module, basic information on **evaluation** is provided in Learning Experience I. Information on **testing**—how to develop tests, the uses of test results, and grading—is addressed in Learning Experience II. Evaluation strategies that are particularly appropriate for use with **adult learners** are discussed in Learning Experience III.

There is a logical reason for this particular organization—for **not** discussing evaluation and testing in terms of adult learners throughout the module. New instructors need basic information about evaluation and testing, as well as information on how to evaluate adult learners. Experienced instructors of younger students, who already have skill in evaluating student performance, need **only** the adult-specific information. Thus, the module is organized to accommodate, as efficiently as possible, the needs of both groups—to allow each to develop the specific skills they need without having to complete activities covering skills they already possess.

ABOUT THIS MODULE

Objectives

Terminal Objective: In an actual teaching situation, evaluate the performance of adults. Your performance will be assessed by your resource person, using the Teacher Performance Assessment Form, pp. 65–67 (*Learning Experience IV*).

Enabling Objectives:

1. After completing the required reading, demonstrate knowledge of the rationale for and major factors involved in student evaluation (*Learning Experience I*).
2. After completing the required reading, critique a test (*Learning Experience II*).
3. After completing the required reading, critique the performance of an instructor in a given case study in developing evaluation plans for use with adult learners (*Learning Experience III*).

Prerequisites

To complete this module, you must have knowledge of the characteristics of adult learners and the process of adult development. If you do not already meet this requirement, meet with your resource person to determine what method you will use to do so. One option is to complete the information and practice activities in the following module:

- *Prepare to Work with Adult Learners,* Module N-1

Resources

A list of the outside resources that supplement those contained within the module follows. Check with your resource person (1) to determine the availability and the location of these resources, (2) to locate additional references in your occupational specialty, and (3) to get assistance in setting up activities with peers or observations of skilled teachers, if necessary. Your resource person may also be contacted if you have any difficulty with directions or in assessing your progress at any time.

Learning Experience I

Optional

Reference: Morris, Lynn Lyons, and Fitz-Gibbon, Carol Taylor. *How to Measure Achievement.* Beverly Hills, CA: Sage Publications, 1978.

Reference: Popham, W. James. *Modern Educational Measurement.* Englewood Cliffs, NJ: Prentice-Hall, 1981.

Reference: Gronlund, Norman E. *Measurement and Evaluation in Teaching.* Fifth Edition. New York, NY: Macmillan Publishing Co., 1985.

Reference: Kirkpatrick, Donald L. *How to Improve Performance Through Appraisal and Coaching.* New York, NY: American Management Association, 1982.

References: The National Center for Research in Vocational Education. Professional Teacher Education Module Series; Modules D-1, D-5, and K-3. Athens, GA: American Association for Vocational Instructional Materials, 1984–86.

Learning Experience II

Optional

Reference: Denova, Charles C. *Test Construction for Training Evaluation.* Madison, WI: American Society for Training and Development, 1979.

Reference: Mager, Robert F., and Beach, Kenneth M., Jr. *Developing Vocational Instruction.* Belmont, CA: Pitman Learning, 1967.

Reference: The National Center for Research in Vocational Education. Professional Teacher Education Module Series; Modules D-2, D-3, D-4, K-4, and K-5. Athens, GA: American Association for Vocational Instructional Materials, 1983–86.

Learning Experience III

Optional

Reference: Knowles, Malcom S. *The Modern Practice of Adult Education: From Pedagogy to Andragogy.* Revised Edition. Chicago, IL: Follett Publishing Co., 1980.

Reference: Knox, Alan B. *Adult Development and Learning: A Handbook on Individual Growth and Competence in the Adult Years for Education and the Helping Professions.* Higher Education Series. San Francisco, CA: Jossey-Bass, 1977.

Learning Experience IV

Required

An actual teaching situation in which you can evaluate the performance of adults.

A resource person to assess your competency in evaluating the performance of adults.

General Information

For information about the general organization of each performance-based teacher education (PBTE) module, general procedures for its use, and terminology that is common to all the modules, see About Using the National Center's PBTE Modules on the inside back cover. For more in-depth information on how to use the modules in teacher/trainer education programs, you may wish to refer to three related documents:

The *Student Guide to Using Performance-Based Teacher Education Materials* is designed to help orient preservice and inservice teachers and occupational trainers to PBTE in general and to the PBTE materials.

The *Resource Person Guide to Using Performance-Based Teacher Education Materials* can help prospective resource persons to guide and assist preservice and inservice teachers and occupational trainers in the development of professional teaching competencies through use of the PBTE modules. It also includes lists of all the module competencies, as well as a listing of the supplementary resources and the addresses where they can be obtained.

The *Guide to the Implementation of Performance-Based Teacher Education* is designed to help those who will administer the PBTE program. It contains answers to implementation questions, possible solutions to problems, and alternative courses of action.

Learning Experience I

OVERVIEW

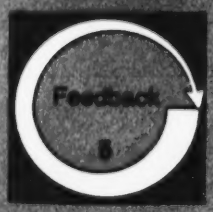
After completing the required reading, demonstrate knowledge of the rationale for and major factors involved in student evaluation.

You will be reading the information sheet, Student Evaluation, pp. 6–21.

You may wish to read selected sections of one or more of the following supplementary references: Morris and Fitz-Gibbon, *How to Measure Achievement;* Popham, *Modern Educational Measurement;* Gronlund, *Measurement and Evaluation in Teaching;* and/or Kirkpatrick, *How to Improve Performance Through Appraisal and Coaching.*

To gain additional skill in conducting student evaluation, you may wish to refer to one or more of the following PBTE modules: Module D-1, *Establish Student Performance Criteria;* Module D-5, *Determine Student Grades;* and/or Module K-3, *Organize Your Class and Lab to Install CBE.*

You will be demonstrating knowledge of the rationale for and major factors involved in student evaluation by completing the Self-Check, pp. 22–24.



You will be evaluating your competency by comparing your completed Self-Check with the Model Answers, pp. 25–26.

Activity 1

Effective evaluation is an essential element in adult learning. It can provide both you and the learners with valuable information about learners' skills, achievements, and instructional needs. This knowledge is essential to your ability to develop instructional plans that will continue to meet students' individual needs. For information on why, when, and how to evaluate; how to grade; and how to use evaluation results, read the following information sheet.

STUDENT EVALUATION

Evaluation is a common and natural human activity. We all do it regularly, whether we are consciously using rigorous and clearly defined standards or taking a more casual and intuitive approach to making value judgments about daily situations.

Regardless of how we go about it, the process of evaluation acts as both a scale and a compass. It acts as a scale in that we measure the value of our gains and losses. It acts as a compass in the sense that we take a directional reading to determine where we stand in relation to the things that we value most.

If the evaluation process is accurate and we use it properly, we gain valuable information that can help guide our course of action. And if that course of action leads to meeting our objectives, it can renew our confidence in our ability to succeed and encourage us to continue our efforts.

If the process is inaccurate or inappropriately used, the negative effects are also felt. These effects are, at their best, demoralizing; and at their worst, loaded with damaging consequences.

Effective evaluation thus depends not only on developing accurate assessment procedures, but on acquiring the skills necessary for using them well. You need to devise good data-collection techniques, which will yield good data; and you need to be able to make sound judgments in analyzing and using those data for instructional purposes.

Why Evaluate?

Many adults come to a learning situation with specific needs that are critical to their professional or personal success. Because the time and energy that they can invest is often limited, they want tangible evidence that their investment is well-placed. Information that provides learners with a view of their strengths, achievements, and the direction in which their work is heading gives them that evidence.

Learners need this evidence not only in formal learning situations, but in independent learning activities as well. Experience with a variety of assessment techniques can enable learners to develop effective and realistic approaches to assessment that they can use on their own.

The benefits of evaluation extend well beyond providing learners with this type of evidence. When students of any age obtain immediate, frequent, and positive feedback about their progress, they consistently learn more, retain more, and are more motivated to continue with their learning activities.

As an instructor, you also will need the information that can be obtained from assessment activities. It can help you identify learners who are ready to move on to new learning activities and those who need additional help in certain areas. It can also help you determine what changes you need to make in your instructional plans in order to meet individual needs.

Bear in mind that you, too, need the type of positive reinforcement that learners gain from knowing what they've achieved. This comes from seeing the evidence that students are acquiring needed skills and knowledge and from knowing that you are providing effective instruction to help make it happen.

A final reason to evaluate is that your own employer is likely to require that you evaluate and report on learners' progress at specified times. Education is expensive, and cost factors must be considered. Businesses and industries operating training programs are interested in the "bottom line": Is their investment paying off? Is the training program cost-effective? Are trainees learning the

skills they need in an efficient manner? Schools and colleges, too, are operating more and more as businesses, with accountability concerns and a cost/benefit focus.

Student performance thus may have a great impact on the fate of a given program. If students in a particular program are not meeting the specific objectives, then the usefulness of that program is in question. Does the program need to be modified significantly? Should it be eliminated? Is the problem not in the program, but in the instruction? In short, program evaluation and teacher evaluation are directly related to student learning and success.

Evaluation Terminology

Because evaluators use some terms in very specialized ways, let's clarify our use of terminology before going any further.

Evaluation. Evaluation is a process by which you (1) **gather** information about the quality of the teaching/learning process and the achievement of objectives and (2) **use** that information to make educational decisions and improve the instructional process.

Assessment. Assessment is the use of specific techniques to gather that information. Thus, theoretically, you can assess (gather data) without evaluating—without analyzing and making use of those data. When a student gets an *F* on a unit test and then goes on to the next unit without having mastered the previous unit, that's assessment without evaluation.

Ideally, however, assessment results should **always** be used not only to identify the amount of student progress and level of student achievement, but also to remedy any problems identified. It is by **using** assessment results that you can best serve those students presently enrolled in your program, as well as future students.

Testing. Testing is not a synonym for assessment; it is one type of assessment. The evaluation process can and should include a variety of assessment techniques: standardized tests and teacher-made tests; objective tests and subjective tests; tests of knowledge, skills, and attitudes; interviews and discussions; observations; and self-reports—just to mention a few. The assessment techniques can be formal (e.g., a structured test) or informal (e.g., a chat with a student who appears to be having trouble completing a lab assignment).

Performance. When training and development people use the term *performance,* they generally mean "behavior on the job." Thus, evaluation of performance would mean evaluation of on-the-job performance. This is **not** how we are using the term in this module.

When we say in the title of the module, *Evaluate the Performance of Adults,* we are using the term *performance* as it is used in everyday English. It means the evaluation of learners' **accomplishments** in the program. What do they **know**? What **attitudes** do they possess? What **skills** have they mastered? In performing skills, do the products they produce and/or the processes they employ meet established criteria?

Depending on the instructional setting, skills may be assessed in the lab, on the job, or both. You may assess just knowledge—through a paper-and-pencil test, for example. You may assess just attitudes—through an attitude scale, for example. Or you may assess knowledge, skills, and attitudes simultaneously using a performance test. In the process of performing a skill, the learner demonstrates that he or she knows the procedures to be followed, that he or she possesses such desirable attitudes as safety-consciousness, and that he or she can perform the skill and produce the product according to specified occupational standards.

Student evaluation vs. program evaluation. The focus of this module is on student evaluation: gathering information about student achievement so that you know, and they know, how much they have progressed since they entered the program and how far they have to go to meet the agreed-upon objectives. But, as mentioned previously, such information also helps you as an instructor to improve your program. Evaluation results show you where things are not working, which allows you to restructure your plans so they will work. In addition to making use of student evaluation data for program improvement purposes, most instructors also use specific program evaluation techniques . . . but that is not the concern of this module.[1]

When to Evaluate

Institutional requirements alone should not determine your schedule for evaluation activities. Your instructional plans and the learners' need for feedback throughout the course will help you decide when to evaluate. Generally speaking, there are three major evaluation phases: preassessment, assessment of progress, and postassessment.

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1. To gain skill in program evaluation, you may wish to refer to Module A-11, *Evaluate Your Vocational Program;* and Module A-10, *Conduct a Student Follow-Up Study.* The use of follow-up surveys in adult programs is covered in Module N-2, *Market the Adult Education Program.*

Preassessment involves evaluating learners' skills and knowledge in a specific area just before or at the beginning of a program (or course or learning activity). It enables you to verify student placement, identify individual training needs, and determine the appropriate level at which to present new learning experiences. The results of preassessment also provide a reference point for measuring the progress learners have made throughout the program.

In many educational institutions and training programs, preassessment is a regular part of the enrollment and admissions (intake) process. In addition, you as an instructor need to ask learners themselves about their skills, knowledge, and objectives in the occupational area. Learners are often the most direct source of information about themselves, and they can provide insights and information that may have slipped through the cracks of the intake process.

Another preassessment method is to test students on the specific content of the program. Theoretically, the results can be most useful. By testing students directly on the theory, skills, and terminology of the program up front, you get a very accurate sense of where they are. It can be a reality check for students, too. This type of preassessment is particularly useful in making pre/postassessment comparisons to identify precisely what and how much learning has occurred.

The disadvantage of this latter type of preassessment is that it can start students off with a negative experience. Presumably students are in the program because it is an area in which they lack skill or knowledge. That's a given. If you start by focusing on what they **don't** know, rather than on some success experiences, it is not particularly motivational. Thus, if you choose to use such tests, you need to administer them in a positive context—focusing on the usefulness of the results (1) in identifying where students are **already** strong and (2) in providing the information needed to plan relevant instructional experiences for the specific members of the class.

Assessment of student progress should be an ongoing process and should occur at regular times throughout the program. It is an essential part of effective learning. Not only do learners gain valuable knowledge about their achievements, but experience with assessment activities can help them build self-evaluation skills that they can use in years to come. As the instructor, you need the information gained from ongoing assessment in order to provide effective learning experiences.

Information from both formal and informal assessments can also help learners identify specific weaknesses they might not otherwise discover until the end of the program. At the end of the program, it might be too late to acquire important skills that they need to meet their objectives. Obtaining feedback during the program gives learners a chance to develop, practice, and build on these skills.

You should informally assess student work frequently and provide students with immediate feedback about their progress. More-formal assessments (e.g., tests) should be made on a regular basis. As a general rule, the most valid and reliable results are provided by tests administered any time from several days to two weeks after skills and knowledge have first been learned. Your teaching situation—the length and type of the program, the instructional plans you have made, and the nature of the learners' activities—will help you determine the best times to conduct progress assessments.

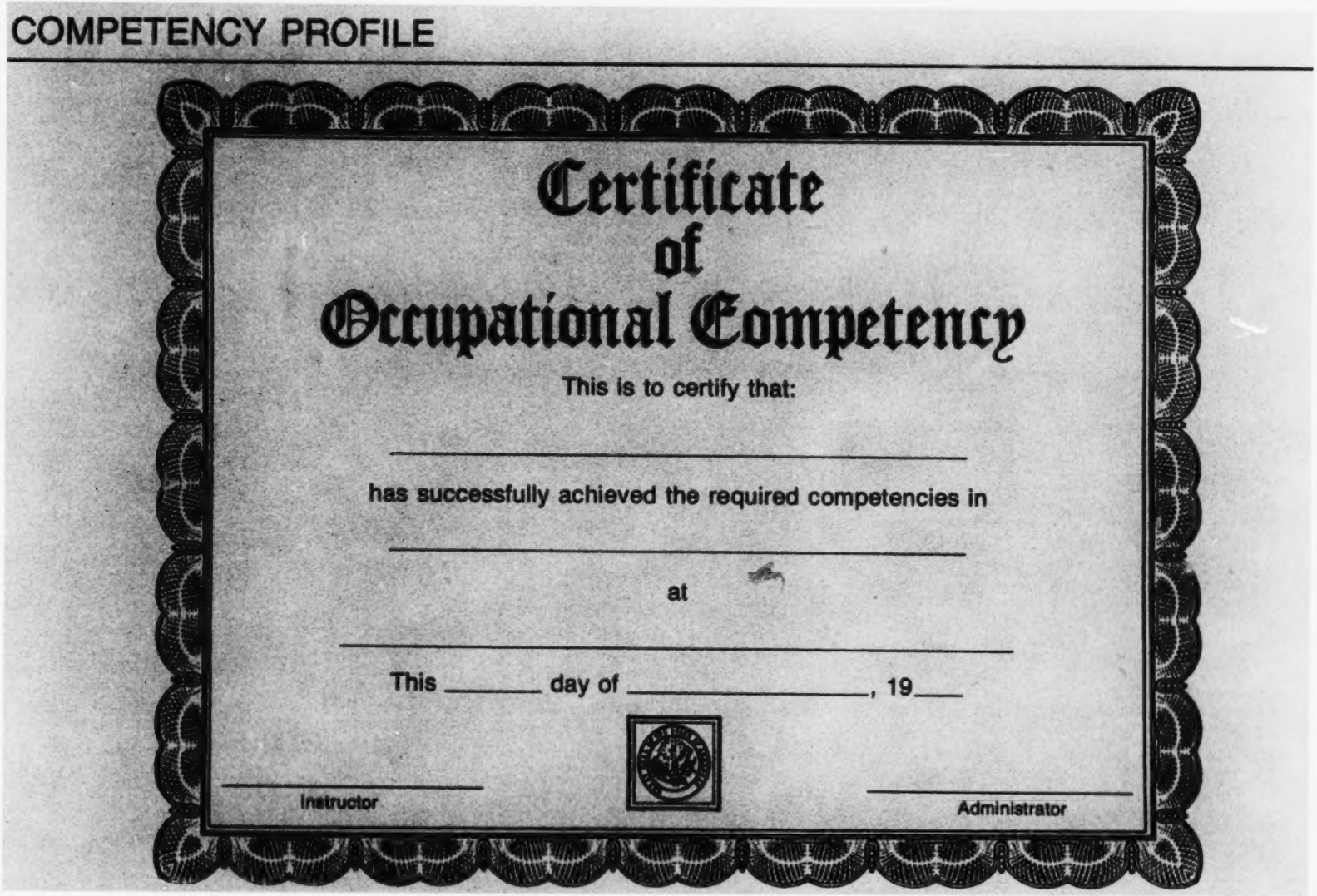
Postassessment occurs at the end of a program or segment of a program. In a conventional time-based program, for example, exams may be given at the end of each unit and at the end of the term. Theoretically, the results of final exams sum up what students have learned since the beginning of the term (i.e., since preassessment). Postassessment results often play a large part in determining a student's final grade for the term. They also should be used as a basis for improving instruction the next time the course or program is offered.

In competency-based education (CBE) programs in which learners continue to work on each occupational competency until they have reached proficiency, postassessments generally occur more frequently. When a student feels he or she has mastered a competency, he or she performs that skill for the instructor, who rates the student's skill level using specific occupational criteria. If the student performs successfully, he or she moves on to the next competency. In such programs, the student may leave the program, not with a final grade (e.g., *A–F*), but with a competency profile showing the ratings he or she received on each individual competency mastered (see sample 1).

Another form of postassessment may be a part of your instructional program. In some occupational areas, such as cosmetology and nursing, students must pass a licensing exam before entering the occupation. As with other assessment efforts, you should make use of the results of licensing exams. The results of such exams give a very clear message to you and your students about the adequacy of your instruction and the adequacy of their efforts.

SAMPLE 1

COMPETENCY PROFILE



Certificate of Occupational Competency

This is to certify that:

_____

has successfully achieved the required competencies in

_____

at

_____

This _____ day of _____, 19____

_____ Instructor

_____ Administrator

SOURCE: Arkansas Department of Education, Division of Vocational and Technical Education

BUSINESS DATA PROCESSING

Name _____

DIRECTIONS: Evaluate the student using the rating scale below. Indicate the degree of competence by checking the appropriate number.

3 - Exceeds performance objectives 2 - Meets performance objectives 1 - Does not meet performance objectives 0 - No exposure

I. RELATED INSTRUCTION	0	1	2	3
A. Math	☐	☐	☐	☐
B. Communications	☐	☐	☐	☐
C. Business Math				
1. Applies mathematical principles to the following business transactions:				
a. Cash and trade discounts	☐	☐	☐	☐
b. Commissions	☐	☐	☐	☐
c. Markups	☐	☐	☐	☐
d. Inventory control	☐	☐	☐	☐
e. Depreciation	☐	☐	☐	☐
f. Financial notes	☐	☐	☐	☐
g. Insurance	☐	☐	☐	☐
2. Is proficient in mathematical operations using binary, octal, and hexadecimal systems	☐	☐	☐	☐
D. Business Communications				
1. Expresses ideas clearly and concisely	☐	☐	☐	☐
2. Exhibits an extensive vocabulary	☐	☐	☐	☐
3. Demonstrates good listening skills	☐	☐	☐	☐
4. Composes and produces effective business communication	☐	☐	☐	☐
5. Is proactive in using telecommunications	☐	☐	☐	☐
E. Office Machine Skills - Uses touch-control keyboard skills for the following:				
1. Electronic calculator (display/tape)	☐	☐	☐	☐
2. Electronic/electric typewriter	☐	☐	☐	☐

II. ACCOUNTING APPLICATIONS	0	1	2	3
A. Understands the accounting cycle	☐	☐	☐	☐
B. Analyzes source documents	☐	☐	☐	☐
C. Demonstrates proficiency in journalizing	☐	☐	☐	☐
D. Prepares financial statements	☐	☐	☐	☐
E. Interprets accounting information	☐	☐	☐	☐
F. Transfers manual applications to the computer	☐	☐	☐	☐
III. COMPUTER OPERATIONS				
A. Main Frame				
1. Identifies software programs	☐	☐	☐	☐
2. Performs operations using computer console DOS and OS systems:				
a. Responds to basic system messages	☐	☐	☐	☐
b. Analyzes and reacts to error messages	☐	☐	☐	☐
c. Uses various utility programs	☐	☐	☐	☐
d. Uses job run procedures	☐	☐	☐	☐
e. Reprograms partitions priorities and changes the size of partitions	☐	☐	☐	☐
f. Initiates system generation procedures	☐	☐	☐	☐
3. Performs peripheral operations:				
a. Mounts tapes on tape drives	☐	☐	☐	☐
b. Mounts disks on disk drives	☐	☐	☐	☐
c. Performs bursting/decollating	☐	☐	☐	☐
4. Performs preventive maintenance	☐	☐	☐	☐

B. Microcomputer	0	1	2	3
1. Understands the basic data processing cycle—input, processing, and output	☐	☐	☐	☐
2. Understands internal representation on data and programs	☐	☐	☐	☐
3. Identifies various forms of auxiliary storage	☐	☐	☐	☐
4. Loads and stores programs to auxiliary storage	☐	☐	☐	☐
5. Performs system generation (boot system)	☐	☐	☐	☐
6. Enters and executes programs	☐	☐	☐	☐
7. Performs operations involving peripherals (printers)	☐	☐	☐	☐
8. Accesses data bases via telephone modems	☐	☐	☐	☐
IV. DATA ENTRY				
A. Inputs by touch control applying proper keyboarding techniques	☐	☐	☐	☐
B. Keys and loads formats on off-line equipment (keypunch)	☐	☐	☐	☐
C. Keys and verifies data on off-line equipment (keypunch)	☐	☐	☐	☐
D. Performs on-line data entry operations (micro or on-line-terminal)	☐	☐	☐	☐
E. Performs keystrokes according to business/industry standards	☐	☐	☐	☐

V. PRODUCTION CONTROL	0	1	2	3
A. Maintains/updates tape/disk library	☐	☐	☐	☐
B. Coordinates machine use:				
1. Establishes program run priorities	☐	☐	☐	☐
2. Ensures input/output deadlines	☐	☐	☐	☐
3. Advises "Office of Primary Responsibility" of input data errors	☐	☐	☐	☐
C. Schedules machine workloads	☐	☐	☐	☐
D. Prepares input data for production and reviews output data for completeness and accuracy prior to distribution	☐	☐	☐	☐

VI. PROGRAMMING (See Section VIII for listing of specific program languages presented during this course of instruction)	0	1	2	3
A. Writes simple programs using:				
1. Input/output and storage operations	☐	☐	☐	☐
2. Basic arithmetic statements	☐	☐	☐	☐
3. A comparing routine and looping	☐	☐	☐	☐
B. Reads and interprets system flow charts	☐	☐	☐	☐
C. Reads and interprets program flow charts	☐	☐	☐	☐
D. Using a given input, is able to flow chart a solution that will produce the desired output report	☐	☐	☐	☐

VII. SOFTWARE APPLICATIONS	0	1	2	3
A. Understands the function of three categories of software:				
1. Application software	☐	☐	☐	☐
2. Utility software	☐	☐	☐	☐
3. Operating system software (firmware)	☐	☐	☐	☐
B. Demonstrates proficiency in text-editing	☐	☐	☐	☐
C. Understands and uses the following accounting software:				
1. General ledger	☐	☐	☐	☐
2. Accounts payable	☐	☐	☐	☐
3. Accounts receivable	☐	☐	☐	☐
4. Payroll	☐	☐	☐	☐
5. Inventory	☐	☐	☐	☐
D. Is proficient in using a financial spread sheet	☐	☐	☐	☐
E. Can properly use a data base manager program	☐	☐	☐	☐

VIII. PROGRAMMING LANGUAGES—Individual received programming instruction in the following languages and attained the indicated level of skills:				
A. _____	☐	☐	☐	☐
B. _____	☐	☐	☐	☐
C. _____	☐	☐	☐	☐
D. _____	☐	☐	☐	☐
E. _____	☐	☐	☐	☐
F. _____	☐	☐	☐	☐
G. _____	☐	☐	☐	☐

PERSONAL QUALITIES/PERFORMANCE

Directions: The following information reflects the instructor's opinion. Check the appropriate letter to indicate your personal evaluation of the student's personal qualities/performance.

0 - Not Observed
NI - Needs Improvement
S - Satisfactory
E - Excellent

IX. DATA PROCESSING ETHICS	O	NI	S	E
A. Understands the importance of protecting data files and information with integrity and confidentiality	☐	☐	☐	☐
B. Understands the importance of systems access security	☐	☐	☐	☐
C. Understands the importance of following line-of-command procedures	☐	☐	☐	☐
D. Demonstrates honesty in production—a day's work for a day's pay	☐	☐	☐	☐

O	NI	S	E	
☐	☐	☐	☐	Follows policies
☐	☐	☐	☐	Manages time well
☐	☐	☐	☐	Dresses appropriately for trade standards
☐	☐	☐	☐	Organizes work area
☐	☐	☐	☐	Contributes to team effort
☐	☐	☐	☐	Displays enthusiasm
☐	☐	☐	☐	Demonstrates dependability
☐	☐	☐	☐	Accepts constructive criticism
☐	☐	☐	☐	Follows instructions
☐	☐	☐	☐	Demonstrates punctuality
☐	☐	☐	☐	Exhibits pride in workmanship
☐	☐	☐	☐	Observes safety rules
☐	☐	☐	☐	Shows potential for advancement
☐	☐	☐	☐	Functions cooperatively with fellow workers

Comments _____

_____

_____

NOTE TO EMPLOYERS: The accuracy of this Competency Profile may be verified by contacting the vocational technical school.

Evaluation Strategies

There are many different evaluation strategies and, as an instructor, you will use a variety of strategies throughout the course. In simplified terms, these strategies fall into two basic categories: informal and formal.

Informal Evaluation

During the program, you will find that you are most often involved in informal evaluation activities. These can include (1) observing students as they learn and perform various tasks, (2) talking to individual learners about their plans and achievements, (3) helping learners find solutions to problems that they have, and (4) setting and maintaining an open-door policy that encourages learners to approach you for feedback. All these activities are crucial to the learning process.

Why are these activities essential to effective learning? Learners are not always able to accurately self-evaluate, and they need constant, positive feedback throughout the course. Lack of experience with the subject matter, lack of self-confidence, or the inability to always be objective about oneself all contribute to a learner's need for feedback from an instructor. In each step of the learning process, learners need to know that they have achieved or can achieve their objectives.

One of your major roles is to provide learners with positive feedback and helpful information about their work. Adult learners need immediate information that confirms that their work is "correct" and headed in the right direction. Praise for the sake of praise is not the purpose of positive feedback. It must be given for specific achievements; otherwise, it is generally meaningless and does little to help develop learning.

No matter how much learners have achieved, you should consistently point out and make positive comments on each learner's achievements. Whether they are learning quickly or slowly, all students need the encouragement and motivation they gain when you identify and respond positively to their achievements. Do not neglect "small" successes—each of these accomplishments builds toward the final objective and should be recognized.

Likewise, learners need your expert help in identifying their mistakes and finding ways in which to correct them. But remember, this is useful only if you provide the learner with information or help in solving the problem. Simply pointing out mistakes serves no good purpose and ultimately can discourage learners altogether. When learners are having problems, you need to ask them questions that will help them identify (1) the specific cause of the problem and (2) possible solutions. When you approach difficulties in this way, you not only help learners with the immediate situation, but you also help them learn how to solve problems independently.

Written comments on projects, papers, and tests are another valuable source of feedback. The same principles that govern effective oral feedback apply to written comments. Make sure that you respond to specific aspects of the learners' work, as well as to the overall product.

Formal Evaluation

Formal evaluation involves the use of evaluation instruments and grading systems. Using these instruments and systems is generally not extremely difficult, but you will need to understand some basic principles, steps, and guidelines in order to use them fairly and effectively. For this reason, the remainder of this information sheet and the one in Learning Experience II focus on developing effective evaluation instruments, designing good tests, and using the results effectively.

Two major approaches to testing are used in most adult occupational programs: written tests and performance tests. Paper-and-pencil or **written tests** consist of objective items, subjective items, or a combination of the two. Objective items are those in which the correct answer for a problem will always be the same, no matter who scores the test. Multiple-choice, matching, and true-false items are familiar examples. Subjective items (e.g., essay items and case studies) require the person scoring the test to interpret or make a judgment.

Whereas written tests are used to evaluate knowledge, **performance tests** require the student to demonstrate skill in a particular task or set of tasks. The instructor observes the process or product (or both) of the learner's performance and rates the student's proficiency according to specified criteria.

When and how you administer tests will depend on a number of factors. Some of these factors, such as the principles and steps involved in developing a good test, will be fundamentally the same in each situation. Other factors will vary depending on where you are teaching and who your learners are. Let's look at the variable factors that will affect the evaluation strategies you use.

Institutional factors. Learners may need to gain specific knowledge, attitudes, and skills (competencies) in your program in order to obtain academic credit, a license, a certificate, or a degree. To demonstrate that they have met these requirements, learners may have to pass **standardized tests** developed locally or by a testing service. If so, you will need to identify the specific requirements so that you can develop learning experiences that will help learners meet those requirements and prepare for these tests. At the beginning of the program, you should also notify students of the expectations and requirements of the institution.

In other situations, the educational institution may not provide standardized tests but may require you to develop **teacher-made tests** based on explicitly stated instructional objectives. These tests are intended to provide proof to administrators, accreditation agencies, prospective employers, and students that learners have acquired specific skills and knowledge in your program. If you are teaching in an industrial training program, the firm that has hired you may also require this form of proof.

You will need to be aware of additional institutional policies regarding evaluation. For example, you may have to submit grades or other types of **progress reports** throughout the program. You should contact program administrators in order to answer the following questions:

- What kind of evaluation reports must you submit, if any?
- What policies govern the release of student evaluation data to others?
- Are standardized forms provided?
- What kind of grading system, if any, is used? Letter grades? Numerical ratings? Percentages?
- What levels of achievement do these grades represent?
- What additional evaluation procedures does the institution require?
- What **concerns** regarding evaluation seem of special importance to the institution (e.g., dropout rates, grade inflation)?

Psychological factors. There are a number of psychological factors that affect how well a person will perform during evaluation. Anxiety, intimidation, frustration, fear of failure, and physical discomfort can all negatively affect a learner's performance. When this happens, the evaluation results don't truly reflect a person's capabilities or knowledge.

Many adult learners who are returning for the first time to educational programs have negative memories and feelings associated with the idea of quizzes, tests, and examinations. For a variety of reasons, they may not have performed well on tests in the past. Right or wrong, they may still feel that when they take tests, they are victims of an arbitrary system, which—when the results are in—seals their fate.

As a consequence, the way in which you present evaluation activities is an important part of the evaluation process. In your role as an instructor, you can help generate an atmosphere that says that learners are **not** helpless victims. By providing positive and informative feedback throughout the course, you can do much to help prepare learners for tests, both psychologically and in the subject area.

You should emphasize that tests and other evaluations are **not** designed to be a vehicle for pigeonholing students or their learning experiences as "successes" or "failures." Rather, tests provide a means for (1) determining where students are in relation to meeting their objectives and (2) identifying areas that need to be **strengthened** in order for them to meet those objectives. Tests are learning devices. You should also let learners know that, in addition to measuring their abilities, test results reflect the quality of the learning experiences that you have designed.

You can do much to help learners become more comfortable with evaluation if you openly acknowledge their possible anxiety. For example, discussing such thoughts as the following may be helpful:

- That they may be experiencing some anxiety
- That some levels of anxiety and apprehension are common and normal
- That they are not alone in these feelings
- That anxiety about doing poorly does not necessarily foreshadow poor results

Many instructors have found that group discussions about testing and evaluation in general can help relieve undue anxiety and dispel self-doubts that learners may have.

In addition, when learners have their first test coming up, you can offer tips on how best to study for and complete an exam, including the following:

- How to space out studying, rather than cramming
- How to determine which topics to focus on
- How to approach the test (e.g., importance of reading and following directions, writing legibly, reviewing responses for accuracy)
- How to determine how much time to spend on each test item (e.g., knowing to skip an item if they do not know the answer immediately and then to return to it after they have finished the rest of the test)
- How to use the test results as a learning tool

Learners' skill and knowledge levels. How well-developed are your learners' basic communication skills? This is an important consideration. A technical knowledge test that requires extensive use of these skills will not yield valid results if learners' basic skills are not well developed. Students may know the information being tested very well, but if they are unable to understand and respond to the test items as presented, their test results will be poor.

Students with poor listening and speaking skills may have difficulty demonstrating the true extent of their technical knowledge on an oral test. Students with poor reading and writing skills may have difficulty demonstrating the true extent of their technical knowledge on a written test. You will need to make sure, therefore, that the test items you use correspond to learners' abilities to understand and respond.

This is not to say that the development and evaluation of students' communication skills may not be a crucial part of your instructional program. It simply means that when you want to test technical knowledge, you should ensure that you do so—that you do not allow other factors, such as weak communication skills, to cloud your results.

Special needs. Physical impairments may also cause poor test results that don't truly reflect a learner's knowledge or abilities. For example, a physically handicapped person might need better wheelchair access to machinery or work areas in order to perform some tasks properly. A visually impaired student might have difficulty reading test items in standard-size print. In such cases, you would need to modify the evaluation process in order to evaluate students fairly.[2]

2. To gain more skill in evaluating the performance of learners who have special needs, you may wish to refer to module L-9, *Assess the Progress of Exceptional Students.*

Individual needs and objectives. Ideally, the primary function of evaluation should be to measure how well individuals are meeting their own learning objectives and gaining skills and knowledge that will help them meet their own overall goals. This ideal situation does not often exist, however. Other factors (e.g., institutionally established learning objectives, professional requirements, industrial standards) affect the functions evaluation must serve. Even so, adult learners need feedback that directly relates to their individual needs and goals. You should take this into account when developing both formal and informal evaluation activities.

Learning domains. For practical purposes, learning is often categorized into three primary areas, or domains: knowledge (cognitive), skills (psychomotor), and attitudes (affective). Understanding the nature of these domains and their relationship to different types of learning activities can help you determine exactly what type of learning you will evaluate and the most effective way to do it. Of course, learner performance in these domains will overlap, but it is useful to consider each of the three domains when developing evaluation plans.

Imagine, for instance, a program on the repair and maintenance of automobile brake systems. Before students actually perform routine maintenance tasks on vehicles, the instructor would probably want to test their **knowledge** of brake systems. A written or oral test could be used to test students' knowledge and determine whether they are ready to move on to the hands-on learning experience.

At certain points in the program, the instructor would need to test learners' **skills** in various tasks. A performance test that required learners to actually change brake shoes, for example, would be an appropriate method of evaluation for that type of task.

Learners' **attitudes** are also an important factor in the maintenance of automobile brake systems. For example, students need to value and act on a number of safety precautions related to working on automobiles. They also need to value a properly maintained brake system. Thus, the instructor would need to evaluate students' knowledge of these safety factors, as well as their performance of safety measures in actual practice.

Student performance objectives. All the factors discussed so far can play an important role in determining the kinds of assessment techniques you use. But it is student performance objectives that actually form the basis for evaluation. These objectives define the specific knowledge, skills, and attitudes that learners need to acquire in your program; and they include the criteria by which student performance should be measured.

For example, an objective might be as follows:

> Given ten shafts with differing measurements, measure the diameter of each with a micrometer within ± .001" of the instructor's measurement.

The objective includes a **condition** statement (*given ten shafts with differing measurements*), an **action** statement (*measure the diameter of each with a micrometer*), and a **criterion** statement (*within ± .001" of the instructor's measurement*).

The criterion statement describes the standard to be met, and in occupational training programs, **occupational standards** generally prevail. Students need to learn to perform according to the standards they will have to meet in the job for which they are training.

Where your objectives come from will be determined by your particular instructional situation. The school, college, or firm may provide you with a very specific list of objectives that must be met in your program. Or you may need to specify program objectives yourself, based on occupational requirements and students' training needs. Or students' individual educational and training needs may play a very large role in determining program objectives, as may be the case in a continuing education program, for example.

When the institution specifies objectives, the institution should also specify the criteria to use in measuring whether the objectives have been met. When the objectives are derived from occupational requirements, occupational standards should form the criteria to be met. When the instructional situation is such that students help specify some or all of their own objectives, then they must also help specify the criteria to be met.

For example, an individual may enroll in a computer literacy course for professional development reasons, even though computer use is not a requirement of his/her job. In that case, he or she needs to help determine the criteria that will define "success," based on his/her own personal objectives.

Grades and Grading

Depending on your situation, you may be required to submit only records of final grades to program administrators, or you may have to submit more complete records (e.g., records of progress reports and grades received throughout the term, copies of tests and performance checklists for each student). You will need to consult with administrators or supervisors where you are teaching to determine what procedures and what type of grading system (if any) are required.

At the beginning of the program, you should inform learners about the grading procedures and standards that will be used. They need to know what to expect and how it will affect their overall records.

Grading Systems

A number of grading systems are in fairly common use. The most common is a **letter grade** (*A, B, C, D, F*) or numerically equivalent **grade point** (*4, 3, 2, 1, 0*) system. Both of these systems are based on a five-point scale, in which each letter or number is equal to a verbal quality rating. For example:

- *A* (or *4*) = Excellent work; clearly superior performance
- *B* (or *3*) = Very good work; exceeds minimum standards of performance
- *C* (or *2*) = Work meets standards; acceptable performance
- *D* (or *1*) = Below standard work; barely acceptable performance
- *F* (or *0*) = Work not acceptable

Some institutions also provide an *I* (incomplete) grade category. If learners receive an *I* they must complete their unfinished work in a set amount of time before a final grade is given.

Another common grading system uses **percentages**. The following is one example of percentage ranges and equivalent quality ratings:

90%–100% = Excellent
80%– 89% = Very good
70%– 79% = Acceptable
60%– 69% = Barely acceptable
Below 60% = Not acceptable

Percentages allow you to calculate grades more precisely because they include a wide range of increments; you can report not just an *A*, but a low *A* (e.g., 90%) or a high *A* (e.g., 100%). Many instructors prefer to assign percentage grades throughout a course so that when all grades are averaged, the final grade will more precisely reflect the student's actual level of performance. Percentage grades can then be converted to letter grades or numerical grade points, if required by the institution.

Note that the relationship between letter grades and percentages will vary among institutions. For instance, in some schools, 92–100 percent is equal to an *A*, and 84–91 percent is equal to a *B*; in others, an *A* is equal to 90–100 percent, and a *B* equals 80–89 percent. No matter what values you assign to the grades you award during your program, the grades that you submit to administrators should correspond to the standards and values they have established.

Some instructors and educational institutions use an S/U grading system. In order to receive an *S* (satisfactory) grade, a learner's performance must meet or exceed specified minimum standards. A *U* (unsatisfactory) grade reflects work that does not meet the minimum standards. Pass/fail grades are similar in principle to S/U grades.

There is some controversy over the value of S/U and pass/fail systems. Some educators believe that these systems are unfair and unrealistic because they cannot truly reflect, except at the most fundamental level, the quality of a learner's work. Others argue that these systems are superior to other systems because they deliver the essential information; that is, the learner either possesses or does not possess certain skills and knowledge.

Other institutions report progress and achievement, not using grades, but using **written evaluations**, **skill reports**, **performance checklists**, or **competency ratings** (as in sample 1, pp. 9–11). Brevity and clarity are essential to developing fair and accurate reports.

Some instructors, especially in CBE programs, use **grade contracts**. They have learners contract for specific grades in each learning experience and/or for the complete program. This method is particularly appropriate for use with adult learners. Adults will generally appreciate, respect, and commit themselves to a grade contract. This approach recognizes their autonomy and ability to choose the appropriate level and amount of work for themselves. Sample 2 provides additional detail about contract grading. Sample 3 is an example of a variable contract for determining grades.

If you are teaching in a situation where grades are not an issue, you may simply plan regular one-to-one conferences and group discussions to provide learners with insights and constructive feedback about their work.

Grade Conversion

If you must submit final grades to the institution, you will need to convert all grades earned during the program into a single grade. This grade should reflect each learner's total achievement. In order to convert grades, you must first establish the **relative value**, or importance, of each test or graded learning activity.

If you figure that the total maximum performance level for your program is 100 percent, each test or graded learning activity then constitutes a percentage of the total possible grade. For example, grades in one program might be weighted as follows:

60% - Six in-class projects @ 10% each
20% - Two written papers @ 10% each
10% - Two take-home assignments @ 5% each
5% - Mid-term examination
5% - Final examination

100% = Total possible grade

Of course, in every learning situation, the relative value of assignments will vary. The most important concern is that the items be weighted in a way that reflects the true value of each individual activity **in relation to the whole learning experience**. If you are teaching in a situation in which major learning objectives and projects can be individualized, learners may have some options about how grades are weighted. Regardless of how the relative value of learning experiences is established, however, learners need to be made aware of these values at the beginning of the program.

Using the established values, you can then convert each learner's scores to a final grade. Sample 4 uses the preceding weighted grade values to demonstrate how an instructor converted one learner's grades to a final grade. The column on the left shows the learner's grades. The column on the right shows the instructor's conversion calculations (with totals rounded off to the nearest tenth). The subtotals on the right are added to determine the final grade for the course. If necessary, the final percentage grade could be converted to a letter grade based on established letter grade/percentage equivalents.

Grade Records

It is vital that you keep accurate and up-to-date records of all grades for each learner. These records serve several purposes. You will refer to them for information about learner progress and achievement—information you need to assist individual learners and plan relevant instruction for the class. Your records provide the documentation you need to calculate final grades for reporting purposes and to justify decisions made concerning the awarding of credits, licenses, or degrees. These records can also be useful when students or former students ask you to write letters of recommendation for them.

The actual system that you choose for recording and storing grades is, to some extent, a matter of personal preference. The "best" method will be one that works for you. Many educational institutions provide instructors with record books designed expressly for keeping grades. Some instructors prefer to use other materials, such as index-card files or loose-leaf binders, in designing a record-keeping system for their grades.

Regardless of the record-keeping system that you choose, it is vital that you keep these records in a safe place to ensure learners' privacy.

SAMPLE 2

CONTRACT GRADING

Contract grading allows a student to make a contract with you for a particular scope of work and to receive a predetermined grade after meeting the terms of the contract. Contract grading is most effective if you explain how the system works and then give the student two or three weeks to decide on a contract. While two or three weeks may seem a bit long, it is crucial that students understand the system thoroughly before making a commitment.

Several types of contract grading are used, each offering more or less freedom to the student and demanding different degrees of responsibility. One type of contract lists the minimum requirements that must be met by students to receive a *D* or a *C*. Students who contract for a *B* are then allowed to select (from a list of possible assignments) the additional assignments they wish to complete. Students may contract to complete special assignments to receive an *A*.

Contracts are cumulative in that work that receives a low grade must be completed satisfactorily before the student can receive higher-level grades. If any work is judged to be unsatisfactory, the student is told why it is unsatisfactory and allowed to revise it until it is acceptable.

If you use this type of contract grading, you must be careful that contracts are not simply quantity-oriented, but quality-oriented as well. That is, students should not receive a *B* simply by doing more of the same-calibre work than students who contract for a *C*.

Another type of contract grading involves **student proposals**, which give students complete freedom to do whatever they choose in order to receive the final grade. As the instructor, you ask students to write down what they plan to do for the grading period. Then you review each student's proposal and decide whether it is acceptable. This type of contract grading is flexible and informal and very appropriate for adult students. Some learners, however, will not be able to plan a scope of work without your guidance—at least not initially.

A third type of contract grading involves **variable grade contracts** (see sample 3). These are contracts that specify a scope of work but allow students to decide how much weight each type of work will have in determining their final grade. Students are free to assign more weight to their strong areas (e.g., class reports) than to their weak areas (e.g., written examinations) in contracting for their final grade. Since the teacher sets a minimum and maximum percentage for each category of work, the student must demonstrate at least minimal performance in each area.

Variable contracts allow you to assess student competence on either an A–F or an S/U basis. Variable contracts may be designed so that students can redo unacceptable work until a satisfactory level of performance is attained.

You should realize that contract grading requires more time than many other grading systems because each student's grade is determined differently, according to his/her individual contract. Contract grading also takes more time if you allow students to redo work until they are satisfied with their performance. However, contract grading is highly motivating to many students and gives them opportunity to develop self-discipline and personal responsibility.

SOURCE: Excerpted from Module D-5, *Determine Student Grades*, p. 12.

SAMPLE 3

VARIABLE GRADE CONTRACT

Instructions: Select the percentage value you wish each of the following activities to count for your quarter related class grade. You may choose any value within the indicated limits, providing the total for all items equals 100%. Enter the percentage value you select in the blank to the left of each item. Complete both copies and return them to the instructor. This contract is final and may not be renegotiated during the quarter.

% Desired	Experience to Be Evaluated
_____%	30%–60% Announced and unannounced quizzes over material currently being studied
_____%	5%–20% Complete and accurate class notes kept in loose-leaf notebook provided
_____%	5%–15% Oral and written reports on articles in approved magazines dealing with horticulture; two will be completed during the quarter
_____%	0%–15% Written report on a subject of special interest within the field of horticulture
_____%	5%–20% Written Final Examination
_____%	5%–20% Relevant class participation and behavior consistent with meeting the goals of the program

_____ _____ _____ _____

Signature of Student | Date | Signature of Instructor | Date

SOURCE: Richard Gustafson, Montgomery County Joint Vocational School, Clayton, Ohio.

SAMPLE 4

GRADE CONVERSION

Learner's Grades (Percentages)	**Instructor's Grade Calculations**
Six in-class projects @ 10% each (60% total)	
95%	95 × .10 = 9.5
90%	90 × .10 = 9.0
88%	88 × .10 = 8.8
90%	90 × .10 = 9.0
85%	85 × .10 = 8.5
95%	95 × .10 = 9.5
	54.3%
Two written papers @ 10% each (20% total)	
84%	84 × .10 = 8.4
92%	92 × .10 = 9.2
	17.6%
Two take-home assignments @ 5% each (10% total)	
90%	90 × .05 = 4.5
95%	95 × .05 = 4.8
	9.3%
Midterm exam—5%	
86%	86 × .05 = **4.3%**
Final examination—5%	
89%	89 × .05 = **4.5%**

LEARNER'S FINAL GRADE FOR COURSE = 90.0%

Using Evaluation Results

No evaluation process is really useful unless the results of assessment are reviewed, analyzed, and incorporated into plans for future learning. Consequently, it is important that you do more than simply mark and record learners' grades, return the graded tests and assignments to individuals, and move on to new learning experiences as originally planned.

Both you and the learners need to review assessment results and identify the following:

- Individual and group achievements
- New learning experiences for which learners are now prepared
- Ways that newly acquired skills and knowledge can be used in upcoming learning experiences
- Skills or knowledge areas that need to be strengthened
- Resources (including the learners' strengths), techniques, and activities that learners can use to reach competence in their weaker areas
- Changes that need to be made in the instructional plans in order to help learners meet their objectives

It is important to remember that positive evaluation results don't just point to **learners'** successes. They also indicate **your** success in enabling others to meet their objectives. You should take time to recognize when your own work is well done—when you have provided effective instruction and an environment that is conducive to learning.

Remember, too, that the **causes** of poor evaluation results (i.e., low grades) need to be identified before they can be addressed. These results can indicate a variety of things. For example:

- **Learners' nonreadiness for evaluation**—People learn at different rates—those who do poorly one week may be prepared by the next. All tests do not have to be given at the same time. The objective of a program should be learning—not test-taking at a fixed time.
- **Misassessment of learners' training needs**—When learners' training needs and skills are not identified (or not identified accurately) during preassessment, the result may be poor performance on evaluations. For example, some students may need remedial instruction in certain areas. It is important to discover this as early as possible, so that individuals can gain the skills they need to participate in the learning experiences.
- **Weaknesses in the instructional plan**—Perhaps learning activities began at too high or too low a level, given what learners already knew and could do. Instruction may need to be modified or paced differently. Bear in mind that when activities are paced too slowly, some students will become bored and inattentive. Thus, they may do as poorly on tests as learners who find that learning experiences are moving too quickly.
- **Unrelated problems**—Sometimes problems not related to instruction affect evaluation. For example, illness of a relative, unemployment, marital difficulties, and a myriad of other factors (including an instructor's negative attitude toward the course or lack of genuine concern for the students) can affect learners' performance.

For more information on student evaluation and testing in general, you may wish to read one or more of the following supplementary references: Morris and Fitz-Gibbon, *How to Measure Achievement;* Popham, *Modern Educational Measurement;* Gronlund, *Measurement and Evaluation in Teaching;* and/or Kirkpatrick, *How to Improve Performance Through Appraisal and Coaching.*

To gain additional skill in conducting student evaluation and grading, you may wish to refer to one or more of the following PBTE modules:

- Module D-1: *Establish Student Performance Criteria*
- Module D-5: *Determine Student Grades*
- Module K-3: *Organize Your Class and Lab to Install CBE*

The following items check your comprehension of the material in the information sheet, Student Evaluation, pp. 6–21. Each of the three items requires a short essay-type response. Please explain fully, but briefly, and make sure you respond to all parts of each item.

SELF-CHECK

1. During a discussion about teaching adults, one instructor flatly states, "Adult learners should never be evaluated, and if you must assign grades because the institution requires it, you should just give one easy test at the end of the course." What would be your response to this instructor?

2. The following seven factors can affect the evaluation process. Read each factor, and describe how it may affect the evaluation strategies you use.

- Institutional factors

- Psychological factors

- Learners' skills and knowledge levels

- Special needs

- Individual needs and objectives

- Learning domains

- Student performance objectives

3. What is the **best** type of grading system to use?

Compare your written responses to the self-check items with the model answers given below. Your responses need not exactly duplicate the model responses; however, you should have covered the same **major** points.

MODEL ANSWERS

1. You might well disagree with the instructor, citing the following as reasons in favor of evaluating the performance of adults.

   Typically, adults are utility-oriented learners who bring specific needs and objectives to a learning situation. Their needs may be immediate, and given other life responsibilities, the amount of time and energy that they can commit to a learning experience may be limited.

   As a result, adults want and need proof that their needs are indeed being met—whether they are in formal or independent learning situations. Effective evaluation activities not only provide learners with this information, but also help adults learn to assess their own performance more accurately. Tangible proof of progress provides a vital boost to the morale; thus, it reinforces and encourages learning.

   As the instructor, you also will need the information provided through evaluation. By incorporating assessment activities into all phases of the program, you can take into account learners' strengths, weaknesses, and objectives and design instructional plans that will enable learners to meet their needs.

   Furthermore, one easy test at the end of the course would not provide you, the learners, the institution, or licensing and certifying agencies with valid information about learners' real abilities and achievements. Effective evaluation occurs during all phases of the program: at the beginning of the program (preassessment), throughout the program (assessment of progress), and at the end of the program (postassessment).

2. **Institutional factors.** Learners may be required to gain specific skills, knowledge, and attitudes in order to receive a degree, academic credit, a license, or a certificate. They may have to take standardized tests based on criteria specified by an educational institution, business/industry, or certifying or licensing agency. Learners need to be prepared for this, and your assessment activities must take these criteria into account.

   The way in which grades are to be reported and other types of evaluation requirements may also be part of institutional policies. In some cases, report forms are provided for instructors, and a schedule for submitting evaluation reports is fixed. There might be an established grading system that reflects specific levels of achievement. Your grading system will need to be compatible with the institution's evaluation policies and procedures.

   Psychological factors. Some adult learners have negative memories of testing. For any number of reasons, they may not have performed well and, hence, may be anxious about being tested. Even those who have performed well on tests in the past may still be anxious in a testing situation. If the fear is great enough, it can negatively affect a learner's performance and yield test results that do not reflect the learner's true abilities.

   If anxiety is a factor, you need to emphasize the ways in which assessment activities can **help** learners. Through identifying their strengths and weaknesses, learners can determine where they are in relation to their objectives and strengthen skills as needed so as to meet those objectives.

   You should also openly acknowledge test-anxiety and its commonness. Your reassurance can go a long way in helping learners (1) feel more comfortable with testing and (2) discover positive techniques for dealing with evaluation.

   In addition, you can help learners cope better with testing by providing them with tips and strategies for test-taking.

Learners' skill and knowledge levels. Learners' skill and knowledge levels affect how you develop a test and write test items. For example, a test becomes less valid if it requires students to use communication skills they don't have. When this happens, learners cannot demonstrate their knowledge because they cannot communicate it to you. Thus, it is essential that you identify learners' skill and knowledge levels and develop tests appropriate for those levels.

Special needs. Learners may have special needs that require modifications in the testing process. For example, a visually impaired student might have difficulty reading a written test. A physically impaired student might have problems in fitting written responses in the spaces provided or in operating equipment that is not modified for his or her use. Any such needs must be provided for in the evaluation and testing situation.

Individual needs and objectives. Adult learners bring their own individual needs and objectives to a program. These are often as important as your overall program objectives and should be identified and included, in individualized form, in assessment activities.

Learning domains. Learning is often categorized into three basic areas: knowledge (cognitive), skills (psychomotor), and attitudes (affective). In evaluating student performance, you need to ensure that you evaluate learning in each area, as appropriate.

For instance, knowledge may be assessed via written tests. Skills may be assessed via performance tests. And attitudes (e.g., regard for safety, punctuality) may be assessed via written tests and classroom observations. Learning in all three areas may be measured—directly and indirectly—via a performance test.

In each situation, you need to identify (1) the type of learning covered by the objective(s) and (2) the most logical and efficient way to assess learners' achievement in that domain or those domains.

Student performance objectives. Just as student performance objectives define the knowledge, skills, and attitudes to be learned, they also establish a basis for evaluation. As you identify objectives to be covered in the program, you should also identify the specific criteria by which learners' achievement should be assessed. The source of the objective (the institution, the occupation, or the learner) should also be the source of the criteria.

3. There is no one best grading system that you should use in all situations. Your particular situation—the requirements of the institution in which you are teaching, course objectives, and learners' objectives—will determine the type of grading system you should use.

Level of Performance: Your written responses to the self-check items should have covered the same **major** points as the model answers. If you missed some points or have questions about any additional points you made, review the information sheet, Student Evaluation, pp. 6–21, or check with your resource person if necessary.

Learning Experience II

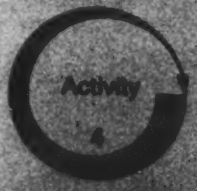
OVERVIEW

After completing the required reading, critique a test.

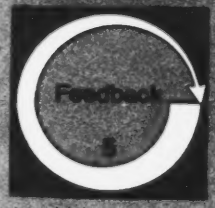
You will be reading the information sheet, How to Construct a Test, pp. 28–40.

You may wish to read one or both of the following supplementary references: Denova, *Test Construction for Training Evaluation;* and/or Mager and Beech, *Developing Vocational Instruction,* pp. 28–51.

To gain additional skill in developing tests, you may wish to refer to one or more of the following PBTE modules: Module D-2, *Assess Student Performance: Knowledge;* Module D-3, *Assess Student Performance: Attitudes;* Module D-4, *Assess Student Performance: Skills;* Module K-4, *Provide Instructional Materials for CBE;* and/or Module K-5, *Manage the Daily Routines of Your CBE Program.*



You will be critiquing the Unit Test, pp. 43–46.



You will be evaluating your competency in critiquing the unit test by comparing your completed critique with the Model Critique, pp. 47–48.

Effective evaluation includes the use of effective tests, and in most cases, you will need to develop your own. For this you will need some knowledge of the principles of test development. For a general introduction to the different types of tests, their uses, and how to develop them, read the following information sheet.

HOW TO CONSTRUCT A TEST

Knowledge about who, what, and where you are teaching is not enough information on which to develop a test. In order to develop an effective evaluation system, you will also need to know (1) the characteristics and uses of good written and performance tests and (2) the guidelines for constructing different types of test items. Let's look first at written tests.

Written Tests

Written tests **may** be objective or subjective; they **must** be valid, reliable, and usable. Sample 5 provides some basic information on these three principles of test development.

Objective vs. Subjective

As noted in the sample, whether you use objective or subjective test items in a given situation can affect the reliability of your test—its ability to consistently measure what it is supposed to measure. Each type of item has distinguishing features, advantages, and disadvantages.

Objective items. These are items in which the correct answer will always be the same, no matter who is giving or scoring the test. The following are some major **advantages** in using objective test items:

- Objective test items can usually be answered fairly quickly. Therefore, you can test for a fairly wide range of information in one test.
- These items can be scored relatively quickly, easily, and accurately using an answer key.
- Judgment calls and opinions are neither necessary, possible, nor desirable in scoring these test items—hence their reliability is high.

The **disadvantages** associated with objective test items include the following:

- Objective test items can be time-consuming to develop and write.
- They are limited in the types and levels of learning that can be evaluated. They test mainly the learners' ability to identify or recall information, not their ability to analyze, synthesize, and organize their knowledge.
- Even professionally developed test items may be ambiguous, and learners are often given no opportunity to justify or qualify their answers.
- Even the best-written objective items can sometimes allow learners to guess the correct answer.

Subjective items. These items require the scorer to judge and interpret individual responses to each item. In order to ensure that a subjective test is as valid and reliable as possible, you will need to establish an objective answer key that includes all the **major** points that learners should have covered in their responses.

The following are some distinct **advantages** to the appropriate use of subjective test items:

- They can test learner's ability to analyze, synthesize, and organize their knowledge; and they can cover a broad or narrow range of information.
- Subjective test items provide learners with a means for creative problem solving. There are many cases in which there may be no single correct or workable solution to a problem. A subjective item may be most appropriate in these situations.

There are two primary **disadvantages** in the use of subjective test items:

- More time is needed for reading and scoring these items than for scoring objective items.
- The validity and reliability of a subjective-item test may be lower than that of an objective-item test. Since the value of an answer depends in part on how well it is defended and supported, it may be hard to judge its value in absolute terms.

SAMPLE 5

THE GOOD WRITTEN TEST: IN THEORY

What makes written tests good or bad? What qualities should your tests have? Should you use objective or subjective items? How do you choose? There is general agreement that a good test should have the following characteristics.

The test should be valid. Validity is the extent to which a test measures what it is supposed to measure. This notion seems so simple and straightforward that you might wonder why it is even mentioned. How could you possibly go wrong?

You can go wrong if the test includes material that learners cannot be expected to know. For example, if an instructor used last year's mid-term to test this year's students, even though he or she didn't cover all the same material, then the validity of the test is much reduced.

The validity of a test can also be reduced if students must use skills other than those you intend to test in order to answer the items. For example, any written test requires students to use reading skills. Essay tests require them to use writing skills. This can cause a serious problem if some students cannot read or respond to the items to begin with. If this happens, your test is measuring two things—technical knowledge and communication skills—whether you intend it to or not. And the validity of the test is therefore reduced.

The length of a test can also affect its validity. Let's say, for example, that you are preparing a final examination for your students, covering the entire semester's technical content. You intend to test students' acquisition of a considerable body of knowledge. Your final examination, then, must be long enough to cover all the knowledge and use of knowledge that you intend to test. However, a test that is too long can measure students' speed in test-taking as much as it tests their knowledge. This too reduces the validity of the test.

The test should be reliable. Reliability is the consistency with which a test measures what it is supposed to measure. A valid test is always reliable—that is, it consistently measures what it is supposed to measure. However, a test can be reliable (i.e., can get a consistent measurement) even if it is not valid (i.e., does not measure what it is intended to measure).

One factor that has a great effect on test reliability is the subjectivity of the scoring. If a test has a high reliability, you should be able to administer and re-administer it to a group of students and get roughly the same set of scores (making allowance for such things as increased learning in the intervening time). Or, two different scorers should be able to sit down with a set of student tests, rate them independently, and arrive at very similar scores.

Subjective scoring, however, can lower the reliability of tests because it can allow inconsistent measurement. Scorers must constantly make decisions—on the basis of their personal judgment, opinion, and preference—about the worth of a student's answers. Thus, it is important to objectify subjective test scoring insofar as possible. For example, before administering an essay test, you need to prepare a scoring key that lists the key points you expect to be made in each answer. You also need to determine how much value to assign to each key point covered.

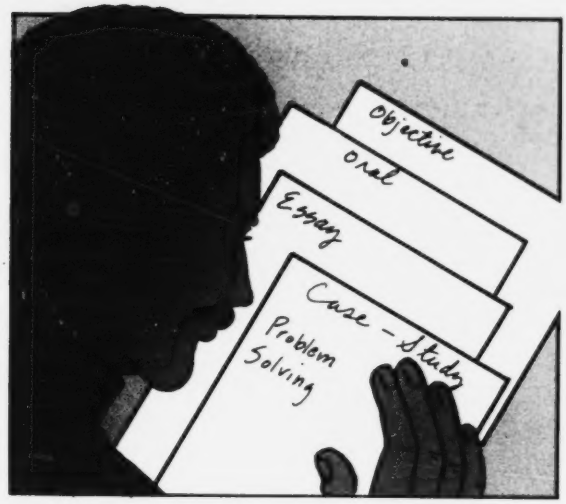
Objective tests, on the other hand, do minimize or even eliminate subjectivity in scoring. If a true-false item is well written, for example, there can be only one answer to it. The item is either true or false, and the student either did or did not mark the correct response. This should hold true no matter who is scoring the test.

The test should be usable. No matter how valid or reliable a test might be, it will be of little use to you if it is unreasonably difficult or time-consuming to prepare, administer, or score.

For example, if an instructor wanted to test students' ability to identify the parts of a diesel engine, it might be most practical to administer a paper-and-pencil test in which learners were asked to label the engine parts on a clear diagram. The instructor could give an oral examination in which students, individually, identified the engine parts, but this would be much more time-consuming for everyone involved and therefore less practical.

Other factors may affect the usability of items as well. Ultimately, you will need to use your own judgment to determine the other qualities that would make a test practical and usable in your own situation.

SOURCE: Excerpted from Module D-2, *Assess Student Performance: Knowledge*, pp. 8–10.



Experienced teachers have noted that the objective test is usually broad, but thin—including wide ranges of subject matter and many items, but never at any particular depth. The reverse is true for the subjective test; it is usually narrow, but deep. Hence, many teachers consistently provide tests that include both types of items, not infrequently in something approximating a 50–50 mix.

Planning The Test

Test design—including both the format and the way in which the instructions and items are written—can also affect the test's validity, reliability, and usability. Sample 6 outlines important procedures for developing and administering a good written test. As noted in the sample, careful planning is a key element in developing a good test. The following are a few simple steps for planning a test:

- Determine when you will need to administer the test.
- Identify the specific student performance objectives to be covered by the test.
- Identify specific criteria, or standards, by which learners' achievements will be measured.
- Determine the type(s) and number(s) of test items that are most appropriate for evaluating each kind of performance (knowledge, skills, attitudes).
- Develop the test items.
- Determine the relative value of the objectives and the criteria, and establish the point value of test items accordingly.
- Plan how you will present the test to the learners; include such information as why you are giving a test, the skills and knowledge areas that will be covered, whether the results will be part of a final grade, and if so, what percentage of the total grade they will constitute.

Developing Objective Test Items

Four major types of written test items are generally considered to be objective: multiple-choice, matching, true-false, and completion items.

Multiple-choice items. In multiple-choice items, the learner selects from a list of possible responses the one correct (or most nearly correct) answer to a problem or question. These items are especially useful for evaluating learners' knowledge, including their ability to recall, identify, and synthesize a wide range of information in a single test.

Multiple-choice items provide a simple response format for the learner and quick, accurate scoring for the instructor. Initially, you may find multiple-choice items somewhat time-consuming and difficult to write. But many teachers feel that the advantages in administering and scoring them more than compensate for this. You will also find that, with experience, good multiple-choice items become easier to write.

The problem or question stated at the beginning of the item is called the *stem.* The possible answers to the item listed are called *responses.* The correct response is simply referred to as the *answer,* and the incorrect responses are referred to as *distracters.*

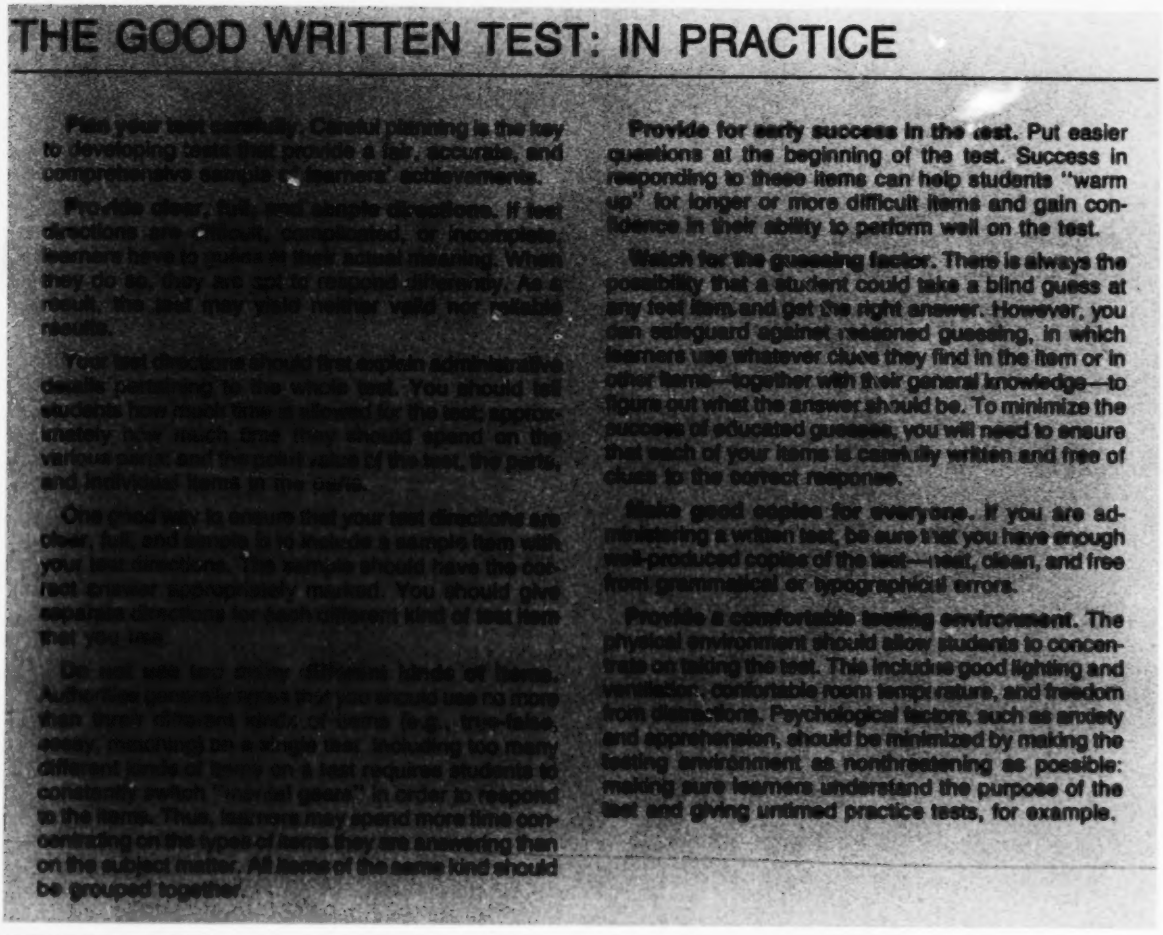
The **stem** can be stated as a problem to be solved, a question to be answered, or an incomplete statement to be completed. By varying the stem, you can adapt the multiple-choice format for your particular use. Sample 7 shows examples of multiple-choice items with various stem formats.

Regardless of the stem format you choose, stems must be clearly and unambiguously stated. Students cannot be expected to provide a correct answer if they cannot clearly understand the question or the problem.

When devising **responses**, remember that not only must all distracters be completely incorrect, but they must also be plausible. If distracters are partially correct, the test is not a valid or reliable measure of the learners' knowledge. Likewise, distracters that are not plausible are a dead giveaway to the correct answer. This also results in a test that is not valid.

It is equally important that the answer be completely correct. If students know the information, or how to solve the problem, there should be no doubt about the correctness of the answer.

SAMPLE 6



THE GOOD WRITTEN TEST: IN PRACTICE

Plan your test carefully. Careful planning is the key to developing tests that provide a fair, accurate, and comprehensive sample of learners' achievements.

Provide clear, full, and simple directions. If test directions are difficult, complicated, or incomplete, learners have to guess at their actual meaning. When they do so, they are apt to respond differently. As a result, the test may yield neither valid nor reliable results.

Your test directions should first explain administrative details pertaining to the whole test. You should tell students how much time is allowed for the test; approximately how much time they should spend on the various parts; and the point value of the test, the parts, and individual items in the parts.

One good way to ensure that your test directions are clear, full, and simple is to include a sample item with your test directions. The sample should have the correct answer appropriately marked. You should give separate directions for each different kind of test item that you use.

Do not use too many different kinds of items. Authorities generally agree that you should use no more than three different kinds of items (e.g., true-false, essay, matching) on a single test. Including too many different kinds of items on a test requires students to constantly switch "mental gears" in order to respond to the items. Thus, learners may spend more time concentrating on the types of items they are answering than on the subject matter. All items of the same kind should be grouped together.

Provide for early success in the test. Put easier questions at the beginning of the test. Success in responding to these items can help students "warm up" for longer or more difficult items and gain confidence in their ability to perform well on the test.

Watch for the guessing factor. There is always the possibility that a student could take a blind guess at any test item and get the right answer. However, you can safeguard against reasoned guessing, in which learners use whatever clues they find in the item or in other items—together with their general knowledge—to figure out what the answer should be. To minimize the success of educated guesses, you will need to ensure that each of your items is carefully written and free of clues to the correct response.

Make good copies for everyone. If you are administering a written test, be sure that you have enough well-produced copies of the test—neat, clean, and free from grammatical or typographical errors.

Provide a comfortable testing environment. The physical environment should allow students to concentrate on taking the test. This includes good lighting and ventilation, comfortable room temperature, and freedom from distractions. Psychological factors, such as anxiety and apprehension, should be minimized by making the testing environment as nonthreatening as possible: making sure learners understand the purpose of the test and giving untimed practice tests, for example.

SOURCE: Excerpted from Module D-2, *Assess Student Performance: Knowledge*, pp. 10–15.

The way the responses are written should not provide clues to the answer. All responses should be phrased in such a way that, when linked with the stem, they result in complete, comprehensible, grammatically correct statements. All responses should be of approximately the same length. Inexperienced test writers often write longer correct answers, with more qualifiers, in order to ensure that they are completely true. The noticeable difference in length is a clue to the correct answer.

A *response pattern* is another clue to the correct answers. When the correct answers always appear in the same position in the response list (e.g., the answer is always in position B) or if they run in a predictable pattern (e.g., B-E-C, B-E-C, B-E-C), the result is a response pattern. Students generally become alerted to this and find that they can rely on the pattern, rather than on their knowledge, to supply the correct answer.

The optimum number of responses for a single item is usually four or five. With this number, the chances of guessing the correct answer are lower than if there were fewer responses. More than this number of responses can be confusing or take too much time to review. This can cause the learner to lose sight of the point of the question.

SAMPLE 7

STEM FORMATS

Problem stem:

You are tripling a recipe that includes ¾ t. vanilla, ⅔ C. sugar, and 3 C. flour. How much vanilla, sugar, and flour will you need?

a. ¼ t. vanilla, ⅓ C. sugar, 1 C. flour
b. 3 t. vanilla, 3 C. sugar, 9 C. flour
c. 2¼ t. vanilla, 2 C. sugar, 9 C. flour
d. 1¼ t. vanilla, 2⅓ C. sugar, 3⅓ C. flour

Question stem:

Which of the following tools is best for measuring the circumference of a cylinder?

a. folding rule
b. compass
c. diameter tape
d. protractor

Incomplete statement stem:

When using a drill press, the table should be adjusted so that the metal being drilled is _____ below the end of the bit.

a. 1 inch
b. more than 4 inches
c. between 2 and 4 inches
d. less than 2 inches

Matching items. Matching items require learners to identify significant relationships—between words or concepts, between principles and their applications, or between symbols and objects, for example. These items can be fairly easily constructed. Because they require learners to do little writing, matching items can be administered and scored relatively quickly.

Matching items are generally composed of two lists. One list (usually the one on the left) is made up of *premises*, while the other contains *responses*. A relationship is stated between the two groups, and the learner is asked to match each premise with the correct response. Sample 8 shows a portion of a matching item, including directions.

When developing matching items, you should provide approximately 10 to 15 elements in each list. (Dealing with more items tends to be confusing for the learner, and providing fewer items encourages the learner to guess.) In addition, you should always provide more responses than premises in order to help reduce the possibility of guessing the correct answers by process of elimination. One list, usually the premises, should be sequentially numbered; and the other, alphabetically lettered. This helps to avoid confusion in both answering and scoring.

Because students need to read the list of responses more than once in order to identify the correct response for each premise, the responses themselves should be brief. The premise statements need not be short, but they should be clear and unambiguously stated.

When producing (e.g., typing) the test, be sure that the whole matching item appears on a single page. It is time-consuming and unnecessarily confusing for learners if they have to look back and forth between two pages to view all possible responses to each premise.

As with other types of test items, you will need to safeguard against response patterns that can help learners predict the correct responses.

SAMPLE 8

MATCHING ITEM

Directions: The list on the left describes the functions of different mathematical symbols. The list on the right contains the mathematical symbols. Match each symbol with the correct description of its function. Write the letter of the correct response in the blank to the left of each function.

_____	1. Is greater than or equal to	a. $\equiv$
_____	2. Is identical to	b. $\gtrless$
_____	3. Is approximately equal to	c. $\neq$ *or* $\neq$
_____	4. Is proportional to	d. $\geqq$ *or* $\geq$
_____	5. Is not equal to	e. $\approx$
_____	6. Is less than or equal to	f. $\perp$
_____	7. Is not greater than	g. $\propto$
_____	8. Is congruent to	h. $\leqq$ *or* $\leq$
_____	9. Is perpendicular to	i. $\simeq$
_____	10. Is not less than	j. $\ll$
		k. $\not<$

True-false items. On true-false items, learners must identify whether each given statement is true or false. You can use these items to assess a wide range of factual knowledge, as well as learners' ability to interpret and summarize this knowledge.

True-false items do not require learners to do extensive writing and therefore can be administered and scored fairly quickly. A problem with true-false items, however, is that they are often less reliable because students have a 50-50 chance of guessing the right answer.

Statements for true-false items are presented in list form. Students are usually asked to mark their responses to the left of each statement. Responses can be marked in various ways (e.g., by writing *true* or *false* or by circling *T* or *F*), as shown in sample 9.

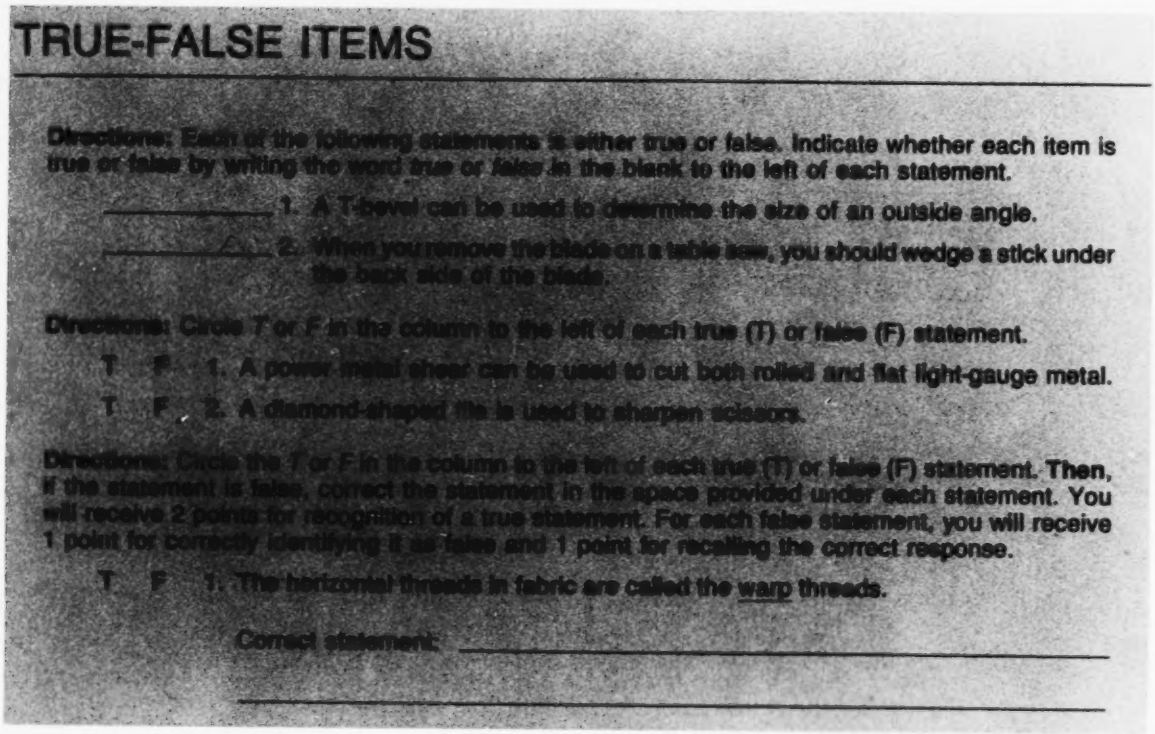
True-false statements should be specific, brief, and clear. Learners must know precisely what the statement is saying before they can determine whether it is true or false. Each item must also be either completely true or completely false. If items are partly true and partly false, learners have to guess whether they are to respond to the true or the false portion of the statement, and the test is no longer valid.

The validity of true-false items will also be reduced if the wording provides clues or if learners have to guess at your definitions. For example, absolute words, such as *always, never, completely, all, more,* and *totally,* tend to be associated with false statements and thus provide clues to the answer. Ambiguous words, such as *usually, frequently, some, often,* and *several,* require learners to guess at your personal definition of these words. How often is frequently? How much is some? Be specific when citing measurements of time, volume, or other quantities.

Some instructors give in to the temptation to lift direct quotes from textbooks or lecture notes when writing true-false statements. Although this may simplify the instructor's task, it does not produce a valid means of assessing learners' understanding or knowledge. Rather, it tests learners' ability to memorize what they have read or heard. You can develop good true-false items by focusing on the **essential** information covered in your course.

True-false items can be developed in ways that are more thought-provoking and less a guessing game. In contrast to what was said earlier, items can be developed so that some are partially true and partially false—if the directions specify that "if **any part** of a statement is false, mark it false." Or instead of simply being asked to identify whether a statement is false or true, learners can be asked to **correct** any false statements. The third example in sample 9 shows this latter type of modified true-false item.

SAMPLE 9



TRUE-FALSE ITEMS

Directions: Each of the following statements is either true or false. Indicate whether each item is true or false by writing the word *true* or *false* in the blank to the left of each statement.

_____ 1. A T-bevel can be used to determine the size of an outside angle.

_____ 2. When you remove the blade on a table saw, you should wedge a stick under the back side of the blade.

Directions: Circle *T* or *F* in the column to the left of each true (T) or false (F) statement.

T F 1. A power metal shear can be used to cut both rolled and flat light-gauge metal.

T F 2. A diamond-shaped file is used to sharpen scissors.

Directions: Circle the *T* or *F* in the column to the left of each true (T) or false (F) statement. Then, if the statement is false, correct the statement in the space provided under each statement. You will receive 2 points for recognition of a true statement. For each false statement, you will receive 1 point for correctly identifying it as false and 1 point for recalling the correct response.

T F 1. The horizontal threads in fabric are called the warp threads.

Correct statement: _____

_____

Completion items. A statement in which a key term or phrase is omitted and replaced by a blank space is a completion item. The learner must complete the statement by supplying the correct word or phrase.

These items can be used to assess learners' **recall** of a wide range of facts, information, and principles, rather than their ability to simply identify a correct answer in a group of provided alternatives. Because the answer is not supplied, the guessing factor is lower than with matching, multiple-choice, and conventional true-false items. Like these other types of items, however, completion items can be scored fairly quickly and easily.

You can begin to develop completion items by writing a set of brief statements that cover the most important information included in the course or instructional unit. The next step, as you review each statement, is to identify a key term, symbol, or numerical value; delete it from the sentence; and replace it with a blank. If an article or other word that would provide a clue to the answer (e.g., *a, an, this, the, these*) precedes the blank, you should omit that too. Note that only **significant terms** should be omitted from completion items.

Items should provide enough specific information so that students can know how to respond. This is perhaps best illustrated by the following example of how **not** to write a completion item:

> The moons of the planet Jupiter were first discovered in _____.

Learners could provide a variety of correct answers to this statement: *1610* (the year in which the planets were first discovered); *a specific area of the night sky* (or, for that matter, the sky itself); *orbit around Jupiter; Italy* (the country in which Galileo, the discoverer, lived); and so on.

Depending on the knowledge that you are testing, this item could be better stated as follows:

> The moons of the planet Jupiter were discovered in the year _____.
>
> The moons of Jupiter were first discovered when the planet's position was at _____ degrees of arc.
>
> The astronomer who discovered the moons of Jupiter was living in the country of _____ at the time of the discovery.

To ensure that the item is both reliable and valid, there should be **only one possible correct answer** for each term that is omitted. When scoring completion items, it is important to remember that the wording of correct responses need not be identical to those in your answer key, as long as the meaning is the same.

Although more than one key term may be omitted from a statement, the item should require only brief, factual answers (i.e., short lists of words, symbols, or numbers). If you want to determine whether learners can supply and discuss a body of information, essay items are more appropriate.

Regardless of the length of the answer, blank spaces for all items should be the same length so as not to provide clues to the correct term. To simplify both the answering and scoring of completion items, some instructors insert only small blanks in the body of the statement itself and provide larger blanks for the responses in a column to the left of the item.

Developing Subjective Test Items

The most common type of subjective test item is the essay item. Essay items require the highest level of communication skill and call for the most complex thinking patterns of all the test items discussed so far. They can be a valuable tool for assessing learners' ability to organize, analyze, synthesize, and present related information. They can also be used to test learners' ability to solve problems.

Depending on the specificity of the essay question or statement, you can cover a fairly wide or narrow range of subject matter in one test item. You can require responses that vary in length from a single, short paragraph composed of one or two sentences, to a few short pages of prose.

A potential drawback to the use of essay items is that learners who have a low level of verbal communication skills are at a disadvantage. Hence, essay items may not provide a valid or fair test of their knowledge or analytical abilities. If such written communication skills are not critical to success in the occupation, essay items are probably not an appropriate assessment technique.

Both the administration and scoring of essay items can be quite time-consuming. Students need more time to develop responses than they do for shorter test items. Scoring, too, takes longer because it requires careful reading, interpretation, and judgment on the part of the scorer.

Types of essay items. One of the most important factors in developing an essay item is determining precisely the knowledge that you will evaluate and the type of essay item that is most appropriate for assessing that knowledge. Common types of essay items include summary, critical analysis or critique, comparison and contrast, and case study. Each type has somewhat different applications.

You might request a **summary** if you want to assess learners' ability to recall, identify, and report the essential elements of a body of information. For example, in a studio photography course, a summary essay item might be stated, *Summarize the advantages of using a moderate telephoto lens in portrait photography.*

You might ask learners to provide a **critical analysis** or **critique** when it is important to determine whether they can identify, analyze, and weigh the strengths, weaknesses, limitations, and unique characteristics of a particular method or tool. An example of this type of essay item might be stated, *Write a critical analysis of the uses of the 35mm lens in landscape photography.*

You might use a **comparison and contrast** essay when you want learners to identify and discuss the similarities and differences in the uses of various principles, methods, tools, or machinery. An example of this kind of essay item might be, *Compare and contrast 35mm and 2¼" format cameras.*

If you need to test learners' ability to apply knowledge, you can develop a **case study** or **recommendation** essay item. This is an item in which learners are asked to analyze a situation or problem and, based on their analysis, recommend an effective solution. These items should be presented in the form of case studies that describe realistic circumstances (e.g., a supervisor's role in dealing with tardy employees, a malfunctioning automobile that exhibits certain symptoms).

Case study items can also take the form of video presentations. Learners view videotapes of various situations and then propose solutions. No matter how you choose to present the case study, the circumstances presented should be realistic and provide enough detail that learners have relevant and sufficient information to work with.

Constructing items. After you have identified the appropriate type of essay item, the next step is to develop it. The essay item should be stated fully and specifically, clearly outlining (1) the type of information or solution that learners must provide and (2) how learners should present that information.

You should identify all the factors that are being assessed as part of the item. Learners need to know specifically what elements will be scored and the weight or point value of each one. These elements can include content, organization, grammar, punctuation, spelling, clarity of the writing, and others. Remember also that it is not legitimate to score any factors that are not part of the learning experiences.

Many instructors recommend that communication skills be scored separately from the content. In this way, both the instructor and the learners can distinguish between mastery of the subject matter and quality of communication skills.

Scoring. You will need to develop a scoring key that identifies all of the information and other factors that are being tested. The next step is to determine the point values of the item as a whole and of each factor. With all these data clearly outlined, you will have a comprehensive scoring key that will help minimize the subjective element in scoring essay items.

In order to ensure that the item is as objective and valid as possible, you should compare the item with the answer key and ask yourself these questions:

- Is the item stated in such a way that it clearly requests the responses that are listed in your key?
- Do the instructions clearly state the way in which learners are to respond?
- Given the length of the test, is there sufficient time for learners to fully respond to the item?

Bear in mind, however, that because each learner will organize and synthesize information differently, **flexibility** is a key element in scoring essay items. You will find that, with some practice, you can develop an answer key that is comprehensive and specific, yet flexible enough to allow for variations in individual responses. Many instructors find that it is easiest to be objective and evenhanded in their scoring if they read all learners' responses to a single essay item in one sitting.

If there are learners in your program who are inexperienced with essay items or whose basic communication skills are not well developed, you may want to plan practice sessions during which they can develop these skills. Practice sessions and tests should begin with short essay items that require less writing and less complex organization and build gradually to longer items.

Performance Tests

There are many situations in which pencil-and-paper tests are not the most appropriate evaluation technique. Performance tests can provide a practical means of assessing how well learners can (1) carry out a **process** or sequence of tasks and/or (2) create a **product**.

Performance tests can be a valuable tool in a number of phases of instruction. They can be used as **pretests** to determine learners' current skill levels before beginning the program or a new learning experience. (One caution: Pretests of a performance nature should never be used if potentially dangerous equipment, materials, or operations are involved.)

Performance tests can also be used as **progress assessments**, as **final assessments**, and as a part of the actual **learning experience**. Learners can use these tests as a **self-check** in practicing their skills and determining their own levels of achievement. This is a common feature of competency-based education (CBE) programs.

In developing performance tests, it is important to remember that they must conform to the same high standards as written tests: they must be valid, reliable, and usable.

Performance tests (see sample 10) generally include three major components:

- A clear statement (directions) concerning the testing situation (What task is the learner expected to perform? What product is he/she expected to produce? How will the performance be evaluated?)
- A checklist of criteria, or performance standards, to be met
- A rating scale

Directions/Testing Situation

The first step is to identify the objective or objectives to be covered by the test. If properly stated, each objective should specify the **action** to be performed, the **conditions** under which performance must occur, and the **criteria** to be met. For instance, a health care program for hospital aides might include the following objective:

Objective: Given a hospital bed occupied by a patient who is dependent on mechanical life-support systems (*condition*), change the bed linens (*action*) without injury to the patient (*criterion*), while maintaining the life-support link at all times (*criterion*).

SAMPLE 10

PERFORMANCE TEST: YES/NO SCALE

PERFORMANCE TEST

Page 1 of 1

STUDENT'S NAME | DATE

COMPETENCY: WELD 3-PASS AND 6-PASS TEE JOINTS IN FLAT POSITION

TEST ATTEMPT: 1ST 2ND 3RD

COURSE NO. 9943

COMPETENCY NO. E-05

DIRECTIONS

At a school work station, weld 3-pass and 6-pass tee joints in the flat position. Based upon items listed below, your instructor's evaluation will determine whether you are competent in this task.

OVERALL EVALUATION

LEVEL ACHIEVED	PERFORMANCE LEVELS
	5 CAN PERFORM THIS SKILL WITHOUT HESITATION AND WITH INITIATIVE AND ADAPTABILITY TO UNUSUAL SITUATIONS.
	4 CAN PERFORM THIS SKILL SATISFACTORILY WITHOUT ASSISTANCE OR SUPERVISION.
	3 CAN PERFORM THIS SKILL SATISFACTORILY BUT REQUIRES SOME ASSISTANCE AND/OR SUPERVISION.
	2 CAN PERFORM PARTS OF THIS SKILL SATISFACTORILY, BUT REQUIRES CONSIDERABLE ASSISTANCE AND/OR SUPERVISION.
	1 CANNOT PERFORM THIS SKILL.

INSTRUCTOR WILL INITIAL LEVEL ACHIEVED

PERFORMANCE STANDARDS FOR ACCEPTABLE ACHIEVEMENT, ALL ITEMS SHOULD RECEIVE A "YES" OR "N/A" RESPONSE.	YES	NO	NOT APPL.
The Process			
1. The student wore appropriate safety apparel			
2. The student used appropriate safety equipment			
3. The student followed all applicable safety procedures . . .			
The Product			
4. The leg lengths of all 3-pass welds were approximately equal			
5. The welds were free of undercut and porosity.			
6. The finished welds were approximately the same size from end to end on each work piece			
7. Distortion was held to a minimum.			
8. Craters were filled			
9. The throat sizes of all 6-pass welds were approximately equal			
10. The surface ripple of all weld beads was uniform.			

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SOURCE: Content adapted from Ridge-Vo-Tech Center, Winter Haven, Florida, 1980.

Based on the objective(s), you next need to describe the situation in which the learner's performance will be evaluated. The situation should include specific details about the task(s) to be performed and the learner's role. For example:

> **Situation:** As a hospital aide, you are changing bed linens. Your next patient is confined to bed and dependent on mechanical life-support equipment. You need to change the linens on that patient's bed. Based upon the criteria listed below, your instructor's evaluation will determine whether you are competent in this task.

In some cases, the situation you devise will be an actual one. In this particular case, where the learner's errors could be life-threatening to a real patient, you would need to devise a simulated situation. For example, another learner could role-play the patient.

Criteria/Checklist

What criteria, or standards, will you use to evaluate the learner's performance? Will you evaluate the learner's performance by observing only the process followed . . . only the product produced . . . both? What other elements (e.g., time, attitudes) need to be evaluated?

You may evaluate **process only** in situations where no tangible final product is produced (e.g., *Greet visitors to the office*). You may evaluate **product only**, which saves time, when all key process elements can be inferred from observing the final product. In other words, the only way the learner could have arrived at an acceptable final product was by following the correct process. Frequently, you will want to evaluate **both process and product**.

A finished product provides valid evidence of proficiency because it is readily measured, and the measurement can be done with relative objectivity. If you are evaluating a product, you will need to list all the factors or elements that should be present and observable in the product. For example, product criteria for the linen-changing objective might include the following:

- The patient was uninjured by the linen-changing process
- The life-support systems were still in place
- The linens on the newly made bed had tight hospital corners

Process, too, must be evaluated in situations such as the following:

- Critical inner parts of a final product are hidden from view (as in a surgical dressing, where inner aseptic measures and medications are of even greater importance than the outer visible areas)
- Sanitation or safety procedures are of extreme importance and must be meticulously observed
- Evaluation involves "live customer" work (as in cosmetology, where an error in the hair dyeing or permanent process could have long-lasting unhappy consequences)

For example, steps involved in the linen-changing process might include the following:

- The learner adjusted the bed to the proper height
- The learner removed the old linens carefully from the bed
- The learner communicated reassuringly with the patient
- The learner ensured that life-support systems were always in place

Often, **attitudes** are crucial to occupational skills. And they're not as impossible to measure as is usually supposed. Measurement just requires a little attention and thought on your part. You need to determine what **behaviors** would indicate the presence of the desired attitudes.

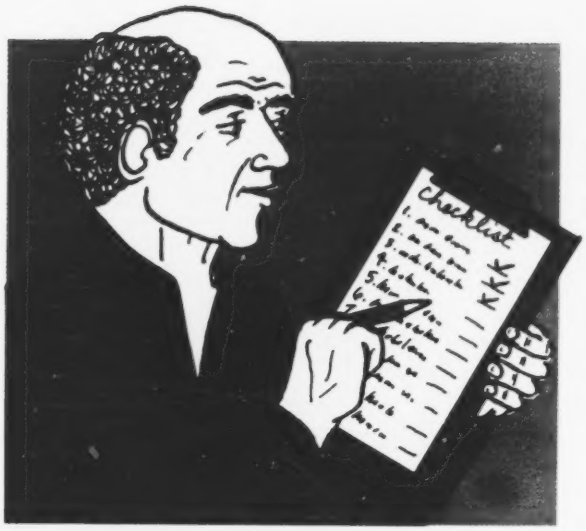
We all say things like, "He's a very courteous person" or "She's a real leader." How do we come to those conclusions? We get clues from a person's actions: he says please and thank you; she volunteers for extra work, and her peers ask her for help.

Some skills involve important **time** factors that must be measured. The batter must be beaten for five minutes. The typist must be able to type 45 words per minute to achieve entry-level competence. Time standards may come from specific industry documents, such as flat-rate manuals. Or they may derive from general trade agreements and union contracts.

From your own experience and expertise in the field, you will be able to identify many of the criteria for successful performance. Other sources for identifying criteria can include employers, labor unions, advisory committees, and manufacturers of the equipment or materials that are being used.

These criteria, logically sequenced and clearly stated in observable terms, form the basis for the performance checklist. The checklist should have at least the following important qualities:

- The checklist should be short enough to make it practical for you to use. Perhaps 5–10 items are sufficient for a simple skill, 10–20 items (at the most) for complex skills.
- The criteria included must be critical to successful performance of the skill. Minor or trivial criteria just make your evaluation job more difficult and time-consuming.



- Each criterion should have some qualitative base. It is not enough to record that the student did something; he/she may have done it poorly or very well, and this needs to be shown.
- The items must be simple and unambiguous—quickly read and understood by you and the students.
- Items should be stated in parallel terms (e.g., all in the past tense).

If you find that your checklist is impractically long, review the criteria and determine whether each item is truly essential. If the checklist cannot be shortened, you should consider dividing the original performance objective into two separate objectives that can be assessed individually.

Rating Scales

There are a number of types of rating scales that you can use. The type you select and the format you use will depend on the nature of the performance to be evaluated.

Yes/no rating scale. One kind of rating scale is the simple yes/no scale (see sample 10). The learner either did or did not perform the task at an acceptable level, and you mark *yes* or *no* accordingly. No assessment is made of the degree to which the performance was acceptable. This type of system is most appropriate when increments of quality are not an issue.

Let's say, for example, that a performance test requires the learner to change the blade on a ⅛-inch table saw. One of the criteria states, *The nut on the bolt must be completely tightened,* and there is no acceptable, observable range of tolerance. In this case, a yes/no scale would be appropriate.

Multi-level rating scales. In many instances it is important to assess the relative quality of the performance or product, or the degree to which a characteristic is present. Furthermore, there may be broad tolerances for successful performance in some areas. In any of these cases, it is most appropriate to use a multi-level rating scale that includes a range of performance levels.

There are two basic types of multi-level rating scales. Probably the most commonly used is a **numerical scale**, in which numbers (e.g., 1 to 5) designate various levels of quality for each factor that is assessed. It is important that the level of quality represented by each number be clearly defined and explained to learners. The following is a list of standard equivalents:

5 = Excellent
4 = Very good
3 = Good
2 = Fair
1 = Poor

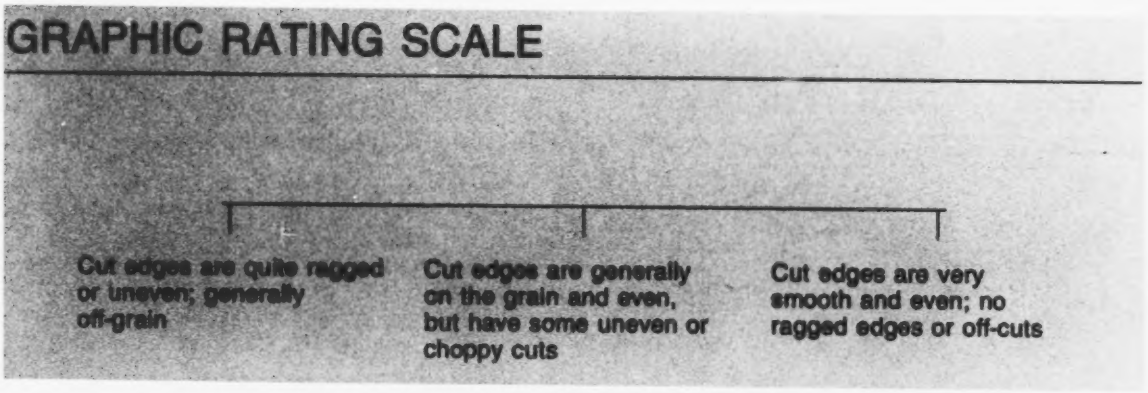
Some instructors prefer to use **verbal response categories** that contain evaluative words, rather than numbers. The Teacher Performance Assessment Form (TPAF) at the end of this module is an example of this type of rating scale. Whether you use numerical or verbal rating scales for evaluation, five levels of performance seem to provide the optimum range of responses.

Format. Rating scales can be arranged in a variety of formats. Among the most popular approaches is to place **columns** of blanks or squares to the right of the performance items (criteria). At the top of the scale, the rating categories are listed from left to right (e.g., 1, 2, 3, 4, 5, or their verbal equivalents). Directly below each category are the columns of blanks or squares. When each item is evaluated, a check mark is placed in the appropriate blank or square. The TPAF in this module and the checklist in sample 10 use this type of format.

A **graphic scale** is composed of a horizontal line that has response categories marked along the line. Each item on this type of checklist has its own individual scale, and ratings for each item are placed in the appropriate place. Graphic scales are particularly useful when brief, task- or product-specific descriptions of performance levels for each item are necessary. Sample 11 shows a graphic rating scale for one item.

Levels of ratings. In rating a learner's performance, there are at least two levels involved. You need to rate **performance in terms of each individual criterion**, or item, on the checklist. You also need to rate the individual's **overall performance**.

SAMPLE 11


GRAPHIC RATING SCALE
Cut edges are quite ragged or uneven; generally off-grain
Cut edges are generally on the grain and even, but have some uneven or choppy cuts
Cut edges are very smooth and even; no ragged edges or off-cuts

If you look at sample 10, pp. 37, for example, you will note that a simple yes/no rating scale has been provided for rating each criterion. However, at the top of the performance test, there is a multi-level scale (1–5, with clear descriptors provided for each level) for rating the learner's overall level of performance.

Administering the Test

Before you administer a performance test, you should provide students with copies of the checklist to use as a reference while practicing their skills. In CBE programs, performance checklists are often a part of student learning guides, modules, or other instructional packages. If it is at all possible in your situation, you should ask learners to determine when they are ready to have their performance formally evaluated and set a convenient date with you.

When preparing for the test, it is your responsibility to be sure that all the necessary materials, tools, and equipment are available. The actual area in which the test will take place should be clean and free of distractions.

It is best to administer **process-oriented tests** individually because you will need an unobstructed view of each step in order to evaluate the learner's performance fairly. In some instances, it may be possible to administer the test to a small group of learners at one time, provided that (1) you have a clear view of each person's activities and (2) everyone in the group is prepared for the test at that time.

If **product evaluation** is the focus of the test, students may simply submit their products to you for evaluation.

After the performance test is completed, you must determine whether each student's performance as a whole meets at least the minimum acceptable standards. If not, the learner will need to practice in order to bring performance up to acceptable standards. Regardless of the total performance rating, you should schedule follow-up conferences with learners to discuss how and why you have arrived at your assessment.

For more information about how to construct tests and test items, you may wish to read one or both of the following supplementary references:

- Denova, *Test Construction for Training Evaluation,* is a readable manual that provides much useful information on evaluation, including clear directions on how to develop an evaluation plan, tests, and individual test items.
- Mager and Beach, *Developing Vocational Instruction,* discusses, step by step, the processes involved in developing instruction. Chapters 5, 6, 7, and 8, pp. 28–51, explain how to establish course objectives and prerequisites, and identify types of performance and appropriate measuring instruments.

To gain additional skill in developing tests, you may wish to refer to one or more of the following PBTE modules:

- Module D-2: *Assess Student Performance: Knowledge*
- Module D-3: *Assess Student Performance: Attitudes*
- Module D-4: *Assess Student Performance: Skills*
- Module K-4: *Provide Instructional Materials for CBE*
- Module K-5: *Manage the Daily Routines of Your CBE Program*

NOTES

Read the following test developed by a vocational instructor. As you read, keep in mind the principles and steps involved in developing an effective test. After completing your reading, **critique in writing** all essential factors of the test.

UNIT TEST

Unit Test: Business Letters

Directions: The following is a test that covers the complete learning unit on business letters. It includes both a written and performance test. The performance test will be administered at the end of the time allowed for the written test.

True-False

1. In a full-blocked style of business letter, the date line, complimentary closing, and writer's identification all begin at the center. All other lines begin at the left margin.

2. In the semiblocked style of business letter, the date line, complimentary closing, and writer's identification all begin at the center. The first line of each paragraph is indented five spaces.

3. The simplified style of business letter includes the following features: All lines begin at the left margin; a subject line replaces the salutation; punctuation is open; the complimentary closing is deleted; and the writer's name and title are typed on one line in all capital letters.

4. In the blocked style of business letters, all lines begin at the left margin.

Matching

Directions: The list on the left provides definitions of various parts of a business letter. The list on the right contains the names of the various parts. Match each name with its correct definition.

5. the writer's name or position or both
6. the writer's and/or typist's initials
7. indicates the way in which the letter was sent
8. a closing phrase, such as "Yours truly"
9. the name and address of the person who is receiving the letter
10. indicates that the letter is written to a specific person or department
11. an opening phrase, such as "Dear Ms. Morris"
12. the names of people other than the addressee who will receive the letter
13. a business's printed name and address
14. the month, day, and year that the letter is typed
15. the typed name and address of the business, if letterhead stationery is not used
16. the text of the letter
17. used in place of salutation; typed on a separate line in all capital letters
18. indicates that the writer speaks for the company

a. letterhead
b. date line
c. inside address
d. salutation
e. message
f. complimentary closing
g. company signature
h. writer's identification
i. reference initials
j. mailing notation
k. carbon copy notation
l. return address
m. subject line
n. attention line

Completion

Directions: Fill in the blanks.

19. The heading of a business letter includes _____ and _____.
20. The opening of a business letter includes _____ and _____.
21. The body of the business letter includes _____.
22. The closing of the business letter includes _____, _____ and _____.

Multiple-choice

Directions: Each of the items below is followed by four possible responses. Select the **one** correct response for each item.

23. If a building name is included in the inside address, it should:

a) be typed in the same line as the street address
b) be typed in the line directly below the street address
c) be typed in the line directly above the street address
d) be typed in the same line as the addressee's name

24. House and building numbers in street addresses should be:

a) typed in numerical figures
b) typed out in word form
c) typed in the same line as the street name
d) typed preceding the street name

25. Which number used as a street name should be spelled out?

a) 24
b) 100
c) 17
d) 4

26. The U.S. Postal Service abbreviation for the state of Maine is:

a) MN
b) ME
c) MA
d) MI

27. The U.S. Postal Service abbreviation for the state of Maryland is:

a) MA
b) ME
c) MN
d) MD

Essay

28. Your text describes eight ways to lengthen a short letter. List and describe all of them.

Performance Test

Learner's Name: _____ **Date:** _____

Directions: Given access to the needed office supplies, edit and type a handwritten draft of a business letter, using printed letterhead stationery, 12-pitch type, and the blocked style. Your performance will be assessed using the following criteria. The instructor will check the YES or NO box to indicate whether you performed each step correctly or whether the product met each criterion as indicated.

The learner:	YES	NO
1. selected appropriate stationery	☐	☐
2. identified all errors (e.g., spelling, punctuation, capitalization) in the handwritten draft	☐	☐
3. corrected all errors accurately	☐	☐
4. made corrections without changing the meaning of the letter	☐	☐
5. used appropriate margins and spacing given the type of stationery, the size of the type, and the length of the letter	☐	☐
6. completed the task in ½ hour or less	☐	☐

The completed letter:

7. included all standard parts in the heading, opening, body, and closing . . . . . ☐ ☐
8. was laid out in accordance with standard block style . . . . . ☐ ☐
9. was error-free . . . . . ☐ ☐
10. was neat and clean (e.g., free of smudges) . . . . . ☐ ☐

Number of criteria attained _____

Number of criteria not attained _____

Total score _____

Instructor's signature _____

Level of Performance: All items must receive a YES response. If any item receives a NO, the learner and instructor should meet to determine what additional activities the learner needs to complete in order to reach competency in the weak area(s).

Compare your written critique of the test with the model critique given below. Your response need not exactly duplicate the model response; however, you should have covered the same **major** points.

MODEL CRITIQUE

Although this test has its strong points, many sections need to be thought through and revised before it is administered to learners.

Some of the sections, as well as individual items, are clearly written and easy to follow. But others are so poorly and ambiguously stated that learners have to guess at the intent of questions or statements in order to respond. This does not create a valid, fair, or reliable test.

Test directions are inconsistent. Again, some are clear and direct while others are incomplete, unclear, or simply absent. The general directions at the beginning of the test, as far as they go, are fairly well written. However, they are incomplete. These directions should include information about (1) the total point value of each section of the test and (2) the amounts of time allowed for the written and performance portions of the test. Directions for each type of item on the test are, in general, poorly written. Specific instances will be discussed in relation to the various types of test items.

The test is fairly clearly laid out, readable, and easy to follow. There are, however, some distinct mechanical problems in the layout (e.g., in the true-false section, no space is provided for learners' responses).

In addition, there are too many different **types of items** in this test. Because of this, learners have to switch mental gears frequently in order to respond to different types of items. This can make it difficult to concentrate on the content of the test. Perhaps some types of items could be rewritten in another format. For instance, the completion items might be written as short essay items and grouped with the other essay item (e.g., Item 22 could be stated: *Name the three basic elements that form the closing of a business letter*).

Although there are too many different types of items on the test, the **number of items** seems to be too few, given the intended scope of the test. And many of those items that are on the test cover a narrow range of information. Test directions clearly state that the test will cover a complete unit on business letters. Thus, the learner might assume that a wide range of knowledge and skills is to be tested. However, the test does not do this, and the result is a spotty and sometimes trivial assessment of the learners' knowledge.

The multiple-choice section, for example, could be expanded to include more items with a greater variety of content. As it is, it deals only with a few aspects of one feature of the business letter—the address. Two of these six items—those that deal with U.S. Postal Service abbreviations—simply test learners' rote memorization of information, which is probably less critical than other knowledge that might be tested.

In addition to the general strengths and weaknesses of the test, the individual sections of the test have both weak and strong points. These are addressed individually in the following discussions.

True-False

The two main problems with this section are that there are (1) no directions for how the item is to be answered and (2) no spaces in which to write responses. Complete directions, including the point value of individual items, should always be provided for each type of item on the test.

The individual items seem to be stated clearly and specifically enough that they are either true or false. However, the instructor may have provided clues to the correct answers by writing longer, more detailed statements for true items than for those that are false. Maintaining a fairly uniform length of true-false items is an important factor in developing items that do not help learners guess the correct answer.

This portion of the test is short—not a problem in itself. However, this section would have been a good place to include a greater number and variety of items to better cover the scope of the unit.

Matching

Generally speaking, the matching section is one of the better developed parts of the test. It comprehensively covers an area of knowledge. Both the premises and responses are clearly written, and there is no predictable response pattern that provides clues to the correct answers.

On the other hand, the possibility of guessing is increased by having exactly the same number of responses as there are premises. There should always be more responses than premises. And Item 15, as well as the directions for the performance test, provides a clue to the correct response to Item 13 (*letterhead*).

Another problem with this section is that the directions do not explain how to mark responses and no spaces are provided for responses. The directions are otherwise clearly stated, but this is an important omission.

Completion

This is one of the most poorly developed sections of the test. The few directions given do not include the point value of the items and do not explain the statement, *Fill in the blanks.* With what?

All the items are written so ambiguously that learners could supply a number of different correct answers for each item. For example, Item 21 could be correctly answered with such responses as *words, information, text, message,* and many others. Items like this turn test-taking into a guessing game and produce tests that are neither reliable nor valid.

Another problem with the completion items is the different-sized blanks. The lengths could provide clues to correct answers (in this particular case, however, the statements are so ambiguous that learners need all the help they can get!).

Multiple-choice

The instructor did remember to write some directions for this section, and what is there is understandable. But once again, the directions are incomplete. They do not indicate how learners are to mark their responses, nor is the point value of the items stated.

Overall, the items are clear and well written. No clues to the correct responses are provided in the stems, and there is a good number of responses to choose from.

One exception, which lowers the quality of this section and reduces the validity of the test, is Item 24: two of the responses provided are correct. Since the directions state that learners are to select the **one** correct response, which are they to choose?

Earlier criticisms of this section—the triviality and limited scope of the questions—are also points for improvement.

Essay

The essay item competes with the completion section for being the worst element of the test. It is stated in such a way that it is merely a test of learners' rote memorization of information provided in the text. It might indeed be important to determine whether learners know how to lengthen a short letter. However, the wording of the question implies that learners must reproduce memorized, printed information, rather than answer from their own bank of knowledge.

In addition, directions are incomplete: the approximate length of the required response is not indicated, nor is the point value of the item cited. Also, very little space is provided for the response. Even if the instructor wanted a brief answer, there is still not enough room, given the range of variation in how learners word their essays and how large they write.

Performance Test

The performance test is the best portion of the unit test, although it would have been more usable had it been put all on one page. (This would also have allowed more space for the response to the essay item.) It is clearly laid out, complete, and easy to follow. The directions here are the best on the test. They are fully and clearly stated, as is the objective.

The items on the checklist are well written and include all important steps and criteria. It should also be noted that **only** important steps and criteria are itemized. This contributes to the manageable length of the test.

The yes/no rating scale for the items seems appropriate for the objective, and the checklist is easy to use, both for marking and for interpreting responses.

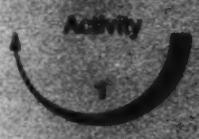
A space for additional comments is the one element that is missing from the test. Otherwise, the performance test seems complete.

Level of Performance: Your written critique of the test should have covered the same **major** points as the model critique. If you missed some points or have questions about any additional points you made, review the material in the information sheet, How to Construct a Test, pp. 28–40, or check with your resource person if necessary.

Learning Experience III

OVERVIEW

After completing the required reading, critique the performance of an instructor in a given case study in developing evaluation plans for use with adult learners.



You will be reading the information sheet, Evaluating Adults: What's Appropriate?, pp. 50–57.

You may wish to read one or both of the following supplementary references: Knowles: *The Modern Practice of Adult Education*, pp. 222–247; and/or Knox, *Adult Development and Learning*, pp. 405–469.

You will be reading the Case Study, pp. 58–59, and critiquing the performance of the instructor described.

You will be evaluating your competency in critiquing the instructor's performance in developing evaluation plans for use with adult learners by comparing your completed critique with the Model Critique, pp. 61–62.

Adults need to be involved in determining both what they learn and how their learning will be evaluated. The skills they gain in identifying appropriate evaluation techniques will enable them to become better lifelong learners, both in and outside of the classroom. For information on how to develop evaluation strategies that are particularly appropriate for use with adult learners, read the following information sheet.

EVALUATING ADULTS: WHAT'S APPROPRIATE?

When adult learners come to the classroom, many of them bring a history of independence and responsibility in coping with life situations. They also have a future that demands that they continue to learn and be able to make effective judgments in many new circumstances. Because of this, it is vital that you devise and implement evaluation strategies that can help students learn how to realistically identify and evaluate their own resources, abilities, and knowledge.

In many classrooms situations, learners do not help determine how and what they will learn, or how and on what basis they will be evaluated. Unfortunately, this situation does not provide learners with essential skills in evaluation. Evaluation strategies for adults are most effective when traditional authority roles are de-emphasized, and the learner's role as an autonomous, responsible adult is emphasized. This can happen when learners are actively involved in identifying and establishing their own evaluation techniques—techniques that will enable them to meet their objectives.

Admittedly, there will be learning situations in which neither you nor the learners will have many options in establishing learning objectives or selecting the types of evaluation devices, criteria, or grading system to be used. Even so, there is still much that you can do to help learners gain more skill and autonomy in dealing with what may first appear to be arbitrary demands. One of the best strategies is to use collaborative approaches.

Using Collaborative Approaches

Collaborative approaches involve learners in identifying and developing learning objectives, evaluation techniques, and criteria. These approaches acknowledge that adults have not only a right but a responsibility to take a more active role in determining all phases of their learning experiences, including evaluation.

Collaboration has several advantages. It encourages a high degree of learner involvement and commitment, both from individuals and from the group. It can enable learners to gain valuable understanding of how they learn.

Collaborative approaches provide a valuable source of preassessment information, since learners must identify their current skills and knowledge in order to determine their learning objectives and subsequent evaluation techniques. An additional benefit of collaboration is that evaluation is often less threatening to learners when they are involved in designing the evaluation strategies than if the strategies are generated solely by an outside authority.

Depending on your situation, the results of a collaborative approach can range from an evaluation system that is totally learner-designed and -scored, to one that includes many standardized or instructor-designed and -scored tests, papers, and projects. Collaboration may not be appropriate in all types of learning situations, however. For example, you may find that it is too time-consuming and cumbersome a process if time in your program is short and learners are unfamiliar or uncomfortable with developing their own learning and evaluation strategies. The extent to which you and learners can collaborate will depend on a number of factors, as follows.

Institutional requirements. You may be teaching in a situation in which the instructional elements—objectives and evaluation tools—are determined by a variety of external sources. In an industry-based

training program, for instance, the firm supporting the program may have established both the objectives to be met and the evaluation instruments to be used. Or licensing requirements for a given occupation may govern what objectives must be met, and a standardized licensing exam may provide the final basis for assessment. Learners seeking to enter a new occupation or to reach a higher occupational level will need to meet objectives covering the competencies required to meet those career goals.

There may be nothing that you can do to change these requirements. However, you and the learners can still collaborate in identifying additional learning objectives and specific evaluation techniques that will help them to meet their unique personal objectives.

Individual needs. In some situations, both the learners and the instructor have numerous options in determining the content and methods of evaluation. In these cases, evaluation can be based largely on learners' individual needs, skills, and objectives.

Imagine, for example, a typing course in which learners are enrolled for different reasons. One is a pharmacist who has enrolled to become a more accurate touch-typist. Another is employed as a typist but wants greater skill in typing statistical tables.

After a brief discussion, the instructor discovers that accuracy, rather than speed, is the pharmacist's main concern. So they develop a learning objective based on that need: *Touch-type 30 words per minute at 100% accuracy.* In the case of the professional typist, the instructor and learner develop the following objective: *Type three different types of statistical tables at 45 words per minute, with 90% accuracy.*

Learners' experience. Learners' familiarity with different **types of learning situations** will also affect the amount of involvement they can have—at least initially—in making instructional decisions. Learners who are familiar only with conventional, instructor-designed courses may be uncomfortable with a collaborative approach. At first, it may seem like an overwhelming amount of new work. Thus, it is important to introduce collaborative activities in small, manageable portions. You will need to take the time to teach them how to develop appropriate learning objectives and select appropriate evaluation strategies.

Learners who are experienced with collaborative approaches will probably be more comfortable with the process and able to move more quickly in identifying learning objectives and relevant evaluation strategies.

Students' experience with the **subject area** will also affect how much they can contribute to the process. Learners who have little knowledge of the subject area will require much more direction in identifying and establishing options in learning and evaluation. This will be less of a factor in an advanced course, in which learners are quite familiar with the principles, techniques, and tools of the occupation.

Establishing the Basis for Evaluation

With all these variables in mind, how can you work with learners to establish a basis for evaluation? Instructors have made use of a variety of techniques, tailored to their situations. Three collaborative approaches that are especially appropriate for use with adults are group decision making, learning contracts, and grading contracts.

Group decision making. As the name implies, this process involves class members, as a group, in identifying and selecting the learning objectives to be met and evaluation strategies to be used. Using this technique, you can also allow learners to incorporate individualized learning and evaluation strategies into the group plan.

Although learners should have a fair amount of freedom in this process, you will need to provide some information and structure so that they will have a frame of reference for decision making. One strategy is to provide forms on which learners can identify the following:

- Learning objectives
- Evidence of accomplishment (proof that the objective has been met)
- Evaluation strategies (how the evidence will be gathered: a written test, oral test, or performance test; instructor review, peer review, or self-evaluation)
- Criteria for evaluation
- Timing of evaluation (when the evidence will be gathered)

You will also need to discuss with them any institutional, occupational, and degree/licensing requirements that will affect the evaluation system to be developed.

Group decision making may not be appropriate in all learning situations. If you are teaching in a course in which learners' needs and goals vary greatly, they may find it difficult or impossible to reach consensus about evaluation strategies. Or, if their group communication skills are not well developed, the group "consensus" may not truly reflect the needs and objectives of all group members. Some may dominate discussion, while others say nothing. You will therefore need to determine whether group decision making is really an appropriate means of determining evaluation strategies in your situation.

The following is a four-step approach that is commonly used in group decision making:

1. **Brainstorm**—Learners form committees (of up to about seven persons), which meet to generate possible (a) learning objectives, (b) evidence of accomplishment, (c) evaluation strategies, (d) criteria, and (e) timing of evaluation.

   Although this process is designed to enable learners to make their own decisions, they may need your help. During the committee session you could visit each committee to ensure that the meeting is running smoothly and productively. Learners may have questions that need to be answered before they can reach any decisions.

   By the end of a set amount of time, learners must reach a consensus about all these factors. The committee then selects a representative to report the group's recommendations to the rest of the class.
2. **List**—At the close of the committee process, the class reconvenes. Each committee representative presents recommendations to the class. In your role as a facilitator, you can help generate a positive, productive session by recognizing the value of everyone's ideas and accepting all recommendations as being open to discussion. You should list all recommendations on a flip chart or chalkboard.
3. **Discuss**—After all recommendations have been submitted, class members discuss each recommendation in terms of its ability to meet individual and group learning needs. You may need to direct the discussion in order to keep participants focused on the topic and ensure that all members have the opportunity to participate. You may also need to respond to recommendations on the basis of your occupational experience and to suggest items that may have been overlooked.
4. **Decide**—When the pros and cons of all recommendations have been discussed, you and the class must reach consensus about instructional objectives and specific evaluation strategies for the course.

Learning contracts. The learning contract can help learners to clarify their objectives, document their learning and evaluation plans, and **commit** themselves to the work they have contracted to do. Contracts also provide a fair and clear basis for evaluation, since the learner knows exactly what will be evaluated and when and how it will happen.

The amount of learner input into the contract can vary greatly, depending on how structured the program is and how independent the learners are. In some long-term programs, for example, learners who are experienced with the subject matter may be required to develop contracts that include some learner-designed evaluation instruments.

In most other situations, however, modified learning contracts are used. For example, an instructor might develop a variety of learning objectives, learning experiences, and evaluation activities. Evaluation activities might include teacher-graded papers and projects, tests, self-evaluations, and peer evaluations. Learners would then select from those options and contract to participate in specific learning and evaluation activities that would enable them to meet their objectives.

There are three preliminary steps that you need to take before developing learning contracts:

1. Assess group and individual training needs.
2. Present general course objectives and institutional requirements related to evaluation. Identify both negotiable and nonnegotiable objectives and evaluation activities.
3. Discuss with learners how evaluation relates to learning objectives.

Once you are satisfied that learners understand these basic principles, you and they can work together to develop individual contracts for a given time period. The following are steps in developing a learning contract:

1. Identify learning objectives (which ones and how many).
2. Identify learning experiences that will enable the learner to meet these objectives.
3. Determine what will be accepted as evidence of accomplishment (e.g., a finished product, written test results, learner's performance, a paper, a presentation to the class).
4. Establish criteria for evaluating each item of evidence.
5. Identify appropriate evaluation strategies: **How** will the learner's achievement be evaluated? **Who** will evaluate the learner's work—the instructor, the learner, peers, experts in the field?
6. Set a target date for accomplishment of objectives and a date for evaluation to take place.

Together you and the learner will have to review all the elements of the contract before a final agreement is made and signed. Your experience in the field will enable you to judge whether the contract is complete and realistic. You may need to suggest items that the learner has overlooked and identify possible problem areas in the sequence or scheduling of activities. When agreement is reached about all the elements of the contract, you both sign and date the contract, and each of you keeps a copy for reference. Samples 12 and 13 are examples of learning contracts.

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SAMPLE 12

INDIVIDUAL LEARNING PLAN

Learner _____ Plan No. _____

Program _____ Date Developed _____

Objectives/Competencies	Evidence of Accomplishment	Evaluator(s)	Expected Completion Date	Actual Completion Date
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Plan cooperatively developed and agreed to by:

_____ Learner

_____ Instructor

SAMPLE 13

LEARNING CONTRACT

BOONE COUNTY CAREER AND TECHNICAL CENTER
GRADING CONTRACT

I, Rodney J. Student, do contract with Mr. T. Churr to complete 10 to 12 competencies and/or performance objectives during the Fall 1987 semester. These must be completed by January 21, 1988 (date).

Please list units, competencies, and/or performance objectives:

Unit Title	Competency Statement
Farm Carpentry	01/01, 02/01, 03/01, 04/01, 05/01, 06/02, 08/01, 09/01, 10/01, 11/01, 12/01, 04/02

The contract shall be negotiated by the fifth week. This contract may be renegotiated by either the student or the instructor when deemed necessary and mutually agreed upon by both parties.

I have been informed that in order for me to receive a passing grade (P) for this semester, I must fulfill the conditions of this contract.

SESSIONS	CONFERENCE DATE	CONTRACT TIME	INSTRUCTOR'S INITIALS	STUDENT'S INITIALS
#1	9/22/87	20 min.	T.C.	R.J.S.

T. Churr (Signature of Instructor) Sept 27 1987 (Date) Rodney J. Student (Signature of Student)

I, _____, renegotiate this contract for:

Unit Title	Competency Statement

_____ (Signature of Instructor) _____ (Date) _____ (Signature of Student)

Please complete in triplicate form, one for your files, the student, and the office.

SOURCE: Boone County Career and Technical Center, Danville, West Virginia.

Throughout the program, you should meet with learners individually on a regular basis to review the contracts in light of the progress they are making. You will need to determine jointly if adjustments need to be made to the original contract and, if so, where and how they need to be made. At the end of each contract, you will need to meet with individual learners to determine whether the contract has been fulfilled.

Grading contracts. Grading contracts provide learners with options (1) in the relative weight of evaluation activities (as in sample 3, p. 19) or (2) in the amount of work they will perform. With this information—and with knowledge of their needs, resources, and abilities—learners can help determine how they will be graded.

In the first situation, a learner who typically does very well on quizzes, but whose note-taking skills leave much to be desired, could contract to have quiz grades constitute a higher percentage of the final grade. The learner's grades on individual activities must still be earned, but the relative weight of those grades is determined, at least in part, by the student.

In the second situation, the final grade is determined by contract. The contract specifies how much work must be completed for an *A*, how much for a *B*, and so on. Because of the outside responsibilities typical of adult learners, some of your students may have limited time available for study. Those students may need to take your class to meet the requirements established for a degree or by their employer. However, they may wish (or have time) to do only the minimum work required to obtain a passing grade; those students could contract to complete the work required for a *C*. Other students who have the time, the resources, and the need to complete more work, or more in-depth work, could contract to complete the work required for a *B* or *A*.

Regardless of the grade contracted for, the standards to be met must be nonnegotiable. A student should not earn the *C* he or she contracted for simply by completing the work; the work must be completed so that it meets the precisely measurable standards established for academic achievement or occupational competence.

To develop grading contracts, you will need to work with learners to specify the learning objectives and level of performance they must achieve. Generally, learners will need two to three weeks' experience in the program before they have a basis for developing such contracts. After signing the contract, both you and the learner should retain a copy for reference.

Selecting Appropriate Evaluation Techniques

Regardless of how or by whom the evaluation strategies are established, it is essential that the evaluation procedures selected are appropriate to each learning objective.

Consider, for example, an automobile repair course in which learners prepare for entry-level employment. Occupational standards would provide evaluation criteria and suggest the appropriate form of evaluation. For the learning objective *Gap spark plug to industry specifications,* the instructor would probably use a **performance test**.

If it were important to verify that learners had knowledge of the operating principles of the internal combustion engine, a cognitive **written test** could be the most appropriate evaluation instrument.

In many situations, **self-assessment** is an effective evaluation tool, particularly for adult learners. Learners can use answer keys to assess their own performance on written tests; they can use performance checklists to rate their competence on performance tests. Self-assessment can be used in preassessment, to help learners identify their skill and knowledge levels prior to beginning new learning experiences. It can also be used within learning experiences, to give learners an opportunity to practice and sharpen their skills before taking graded tests.

Through self-assessment, learners can complete and score tests in private, without the fear and anxiety often associated with tests given by an instructor. Then, when they feel they are ready, they can approach the instructor for a graded test. Initially you will often need to help learners determine their readiness for the graded test.

There are some commercially available self-assessment tests that can assess a range of skills in a variety of occupations. You may wish to check with counselors at your institution or state curriculum centers in order to determine what is available in your field. You can also develop your own self-assessment devices, using either performance tests or cognitive pencil-and-paper tests. These should be accompanied by a scoring key or model answers, as used in this module, that learners can use to score their own work.

Another excellent means of self-assessment is the **journal**, or log, in which learners record their learning plans and activities. Journals are especially useful in helping students document their learning activities and determine what they need to do in

order to meet their objectives. They can be used in conjunction with learning contracts or as an independent learning and evaluation strategy. Depending on your situation, you may ask learners to submit their journals to you for review and discussion, or you may choose to have them keep private journals for their own personal reference.

Journal-keeping styles usually depend on individual preference. Some learners prefer to keep a simple log in list form and to jot down their learning activities, the objectives they have achieved, their own performance ratings, and their plans for meeting new objectives. Others prefer to keep a prose journal in which they discuss these things in more depth. There are a number of possible variations on these basic approaches that learners can adapt to their own personal styles.

If you are teaching in a program in which grades, licensing, academic credit, and institutional requirements are not an issue, you can determine evaluation devices and criteria largely on the basis of individual learners' needs and abilities. But those needs may vary quite a bit. Some adult learners may still want and need to use a variety of tests that will give them specific feedback about their progress. Others will prefer an approach which provides them with feedback but which is much less formal and structured.

In such a situation, you could give the tests that the first group desires and also provide for informal, less structured strategies for the others. Informal one-to-one conferences, group discussions, and private journal writing would probably meet the needs of the second group. Note, however, that in this type of learning situation, learner participation in test taking and other evaluation activities should be voluntary.

Selecting the Appropriate Evaluator

Who should evaluate the performance of adult learners? The learner? The instructor? Employers? Workers? Learners' peers? The answer to this question will vary with the situation. In many instances, all these people may be involved as evaluators at different phases of the learning experience. But many educators contend that involving **the learner** in self-assessment activities provides the most effective form of adult evaluation. Thus, it is important that you build as many self-assessment activities into the evaluation plan as possible.

Self-assessment enables students to learn how to form objective judgments and promotes a greater sense of self-direction and responsibility. Therefore, it helps them gain valuable skills that they can use throughout their lives, in any situation. Granted, the reliability and usefulness of self-assessment will depend, in part, on learners' self-confidence and skill in forming objective judgments. However, with practice, learners can improve these skills and become better lifelong learners.

Learners can also become skilled in reviewing and evaluating their peers' performance, products, or knowledge. This makes **peer** evaluation an excellent technique for use with adults. A learner might request another's help in evaluation—and later switch roles and become the evaluator. The student who acts as the peer evaluator can use a performance checklist or an answer key or simply provide informal feedback when rating the other's performance. After the initial peer evaluation, the students should meet to discuss the results and possible strategies for improvement.

Peer evaluation can allow learners time to practice skills and obtain objective feedback from people who are not involved in determining grades. Both learners benefit from this process. One gains valuable feedback about his or her achievement; the other sharpens his or her skills in identifying essential criteria and thus reinforces his or her own skills and knowledge.

You will need to stress to learners that they must be as objective, nonthreatening, and honest as possible in evaluation. Only in this way can their peers obtain useful, reliable information about their abilities. Note, too, that peer evaluation should usually be voluntary. Some students may be extremely uncomfortable in either role, thus limiting the validity or reliability of the evaluation. However, with practice, many learners can acquire skill and ease with peer evaluations.

There may be times when neither you nor the learners are the most accessible or most expert evaluator available. If a learner is completing an independent study in an area beyond your expertise, for example, an **employer** or **worker** with the needed expertise may need to be asked to evaluate the results. Likewise, in a cooperative education program in which learners are on the job part of the time, their **on-the-job supervisors** may need to take on some of the responsibility for performance evaluations. The same might be true in an industry-based training program.

In most situations, **instructor** evaluation should still be a substantial part of the evaluation system. In fact, the instructor's role as an evaluator is probably the most varied of all. With your knowledge of the subject area, you can help learners identify essential learning objectives, appropriate criteria, and evaluation strategies. You can act as facilitator, helping learners to devise learning contracts and develop self-assessment and group decision-making skills. And of course, in conjunction with many collaborative evaluation approaches, you will need to design, administer, and score written tests; design and evaluate performance tests; and submit evaluation reports to the institution in which you are teaching.

You may wish to read one or both of the following supplementary references:

- Knowles, *The Modern Practice of Adult Education,* examines the principles and practices involved in effective adult education. Section III, "Helping Adults Learn," pp. 222–247, discusses strategies to help learners diagnose their learning needs, formulate learning plans, and identify appropriate evaluation techniques.
- Knox, *Adult Development and Learning,* is an in-depth and readable study of the many social, personal, and physical factors that affect adult development. Chapter 7, pp. 405–469, provides a detailed overview of the factors that influence and direct adult learning.

The following case study describes how Harv Dunfry, a new technical instructor, developed evaluation plans for use with adult learners. Read the case study and **critique in writing** Mr. Dunfry's evaluation practices, both strengths and weaknesses.

CASE STUDY

Harv Dunfry hung up the phone and looked around the garage. "Not bad," he thought to himself. He had a three-bay garage now and steady customers who sent in referrals all the time. He'd come a pretty long way from the high school kid who'd picked up extra money doing car repairs for neighbors.

And now, one of his customers, who worked for the local school system, had just called. She'd asked him if he would be interested in teaching a beginning auto repair course in the night program for adults. He'd said, "Sure."

Harv Dunfry, a teacher, eh? Well, school had been all right—except for the teachers who made you crazy with their rules and pop quizzes. But then, he didn't have to be that kind of teacher. He'd also had some good ones who really knew their stuff and who made sure that you learned it. But at the same time, they had cared about who **you** were and what was important to you. That seemed to be more of what being a teacher was all about.

In a few days there was supposed to be an orientation program for new instructors. Experienced instructors were going to be teaching some techniques to use in the classroom so that you'd have something to go on when you first started. Harv hoped they'd have something useful to say.

As it turned out, the last night of the orientation program had been particularly interesting. Someone had talked about working with adult students. She said they needed independence and the freedom to have a say in what they were going to learn and how they were going to be evaluated.

It really **had** made a lot of sense. Wasn't that what his teachers in school had been doing when they let him work on some of his own projects and then helped him troubleshoot problems when he got stuck? Of course, he'd had to do regular studying and take tests, too, but that was usually fair. He might not have been able to work on some of the projects if he hadn't learned the material that the teachers required.

All in all, it seemed like the best approach for his course might consist of some readings, followed by a few tests on the things that he knew for sure everyone would need to know. Then, by watching people in the shop, he could tell if they were learning the hands-on skills that they needed. Other than that, everyone could decide about the additional things they wanted to learn and how they would be evaluated. That way, everyone could get the most out of the class.

The first night of class Harv handed out an outline that described the learning objectives included in the course, the name of the book they would need to get, and a list of the six tests that would be given. Harv explained that the reason he was giving these tests was that they covered material that everyone would need to know if they were going to learn anything about auto mechanics. He also explained that what they did in the rest of the course was up to them. They would decide what they were going to learn and how they'd be tested, and then he'd help them in whatever way he could.

He said that he'd heard about a process called group decision making that he'd like them to try out that evening. He explained how the process worked, and described all the steps involved. He then asked learners to form committees and decide on what else they wanted to learn and how they thought they should be evaluated. For example, did they want to take tests? Did they just want to talk to him about their work? Or were there other things they wanted to do?

After the learners had formed committees, Harv left the room while everyone met. He didn't want to put any pressure on them about what they should do, and he thought it would be better if he just left everyone alone for a while.

When they were done talking, everyone regrouped and Harv asked for their recommendations. It turned out that they all had pretty much agreed that the six tests he had on the outline were plenty. As for the

rest of the course, the general consensus was that he probably knew the most about what they should learn, since no one had worked much on cars before. After class he reflected, "So much for group decision making—they all decide not to decide. Well, if that's what they want, I guess that's it."

By the fourth week of the course, Harv wasn't sure where to go next. Everyone was still showing up, and they seemed to like the class. But they were all working at different speeds. As a result, it was hard to decide when to start the next project on engine timing, much less when to give the test on checking for worn-out belts.

He'd thought after that first night that it would be pretty simple since everyone had agreed on the same thing. But, it wasn't—they all turned out to be so different.

For instance, there was Lonnie, who didn't even know how to check his tire pressure when he started the course (and he thought he was going to save hundreds of dollars in car repair bills by the time he finished the course!). He'd done all right on the tests, but Harv wasn't sure he'd ever get air in his tires without blowing them up. Still, he sure seemed to be happy fooling around the engine, and he knew how to check his oil level now. So, maybe it wasn't a total loss.

But then there were people like Janet and Steve, who were making rapid progress through the hands-on activities. They evidentally had done some work on cars before. They kept talking about exhaust systems and rebuilding carburetors. He didn't want to hold them back just because other people weren't as far along.

On the other hand, Steve hadn't passed any of the tests so far. For that matter, he hadn't even gone so far as to write his name on the test. Maybe he just was too embarrassed to put his name on a test he hadn't studied for. At first, Harv thought maybe Steve had been sick and hadn't had a chance to study, so he asked him if he wanted to take the tests again later. But Steve said no, he'd just live with it. Well, okay. He didn't want to push anybody.

NOTES

Compare your written critique of the instructor's performance with the model critique given below. Your response need not exactly duplicate the model response; however, you should have covered the same **major** points.

MODEL CRITIQUE

Harv Dunfry's approach to teaching and evaluation was based on the very best of intentions. Drawing on some good general advice given at the instructor's orientation session and his memory of good teachers he'd had in high school, Harv set out to teach a class in which adult learners had choices about what they would learn and how they would be evaluated. Clearly, he had a lot to offer the learners who returned to the course week after week.

He should be commended for relying on his knowledge and experience when he provided structure for the course by identifying the performance objectives and evaluation devices essential for an introductory course.

Harv's choice in using a collaborative approach was a good one, and he made a very sensible move when he explained to learners all of the steps involved in the group decision-making process. However, Harv's silence on the subject of grades left a number of important questions unanswered. Were the planned tests to be graded? What other learning activities would be graded, and how? If so, what assessment results would contribute to a final grade? Would grades be submitted to the institution? Did the school require that learners be graded? Harv's students needed to have this information in order to make more informed decisions about their activities and appropriate evaluation strategies.

In addition, even though he was acting out of respect for the learners' right to make independent decisions, Harv's decision to leave the classroom during the committee sessions was unwise. He needed to be present in order to provide information and guidance during the process. As it was, beginning learners simply didn't have enough information to work with when making decisions. Hence, their choice was "not to decide."

Harv was thrown off track by the class's general agreement to do what **he** thought best. It was possible, since this was an introductory course, that he knew the most about specific learning options. However, he could have presented learners with a variety of learning experiences and evaluation activities to choose from, rather than simply telling them to decide for themselves.

It is also possible that, given learners' range of skills and experience, Harv and the class would have been better off using individual learning contracts.

Harv's concern about holding back some students because others were slower could have been eliminated if he had conducted some preassessment activities to obtain basic information about learners' skill and knowledge levels. It turned out that his students had a wide range of skill levels, which could have been accommodated earlier if he had known about them. As it was, Harv relied on observation and informal discussion to obtain this information. These are indeed good tools for assessment if used systematically, but they need to be supplemented with other strategies that can provide specific information at an early point in the course.

Perhaps Harv would have discovered, through preassessment, that Steven had some advanced skills in auto mechanics but lacked other skills, such as the ability to read or write well. With this knowledge, he could have done two important things: (1) work with Steven to identify more advanced projects to work on independently and (2) evaluate Steven's knowledge through oral, rather than written, tests.

Harv was correct in explaining why he had developed the tests that he planned to use, but he should have also explained how the test results could **help** them, as well as how they affected overall grades.

It also seems that, even though the use of some written tests was appropriate for assessing learners' knowledge, Harv needed to go further in his plans and provide for evaluating learners' hands-on skills through observation. He needed to develop some performance tests to accurately evaluate learners' skills. Learners could also have used these tests for practice and self-assessment. Maybe, in that way, Lonnie could even learn to fill his tires without an explosion.

In addition, a group consensus about taking the tests that Harv had planned did not mean that everyone in the class had to take the same test at the same time. There was no apparent need for this. And if he had arranged for learners to take tests when they were ready, there would have been less confusion about when to administer the next test and when to move on to the next learning experience.

For the most part, Harv Dunfry's efforts in working with adults to develop evaluation strategies were pretty well founded, but they needed to be further thought out and developed.

Level of Performance: Your written critique of the case study should have covered the same **major** points as the model critique. If you missed some points or have questions about any additional points you made, review the material in the information sheet, Evaluating Adults: What's Appropriate?, pp. 50–57, or check with your resource person if necessary.

Learning Experience IV

FINAL EXPERIENCE

In an actual teaching situation,* evaluate the performance of adults.

As part of your instructional duties, develop and implement strategies for evaluating the performance of adult learners. This will include—

- planning for evaluation
- using collaborative approaches to evaluation
- involving appropriate persons as evaluators
- developing written tests and performance tests as needed
- administering each test and reviewing the results
- determining learners' grades

NOTE: Due to the nature of this experience, you will need to have access to an actual teaching situation over an extended period of time (e.g., one to three weeks).

As you complete each of the above activities, document your actions (in writing, on tape, through a log) for assessment purposes.

Arrange to have your resource person review the documentation you have compiled. If possible, arrange to have your resource person observe at least one instance in which you are conducting evaluation activities (e.g., administering a test, facilitating group decision making, developing or reviewing a learning contract).

Your total competency will be assessed by your resource person, using the Teacher Performance Assessment Form, pp. 65–67.

Based on the criteria specified in this assessment instrument, your resource person will determine whether you are competent in evaluating the performance of adults.

* For a definition of "actual teaching situation," see the inside back cover.

NOTES

TEACHER PERFORMANCE ASSESSMENT FORM

Evaluate the Performance of Adults (N-6)

Name _____

Date _____

Resource Person _____

Directions: Indicate the level of the teacher's accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

	LEVEL OF PERFORMANCE					
	N/A	None	Poor	Fair	Good	Excellent
In planning for evaluation, the instructor:						
1. identified and accommodated the following:						
a. institutional requirements	☐	☐	☐	☐	☐	☐
b. occupational requirements	☐	☐	☐	☐	☐	☐
c. individual needs, objectives, and skill and knowledge levels	☐	☐	☐	☐	☐	☐
d. learners' special needs	☐	☐	☐	☐	☐	☐
In using collaborative approaches to developing evaluation strategies, the instructor:						
2. worked **with** learners, to the extent possible, to identify:						
a. learning objectives	☐	☐	☐	☐	☐	☐
b. learning experiences	☐	☐	☐	☐	☐	☐
c. evidence of accomplishment	☐	☐	☐	☐	☐	☐
d. evaluation criteria	☐	☐	☐	☐	☐	☐
e. evaluation strategies	☐	☐	☐	☐	☐	☐
f. timing of evaluation	☐	☐	☐	☐	☐	☐
If the group decision-making process was used, the instructor:						
3. introduced the process and the procedures to be followed	☐	☐	☐	☐	☐	☐
4. accepted and listed all learner recommendations for discussion	☐	☐	☐	☐	☐	☐
5. guided and contributed to the discussion of the recommendations as needed	☐	☐	☐	☐	☐	☐
6. ensured that consensus was reached	☐	☐	☐	☐	☐	☐

	N/A	None	Poor	Fair	Good	Excellent
If learning contracts were used, the instructor:						
7. provided learners with adequate structure and directions for developing learning contracts	☐	☐	☐	☐	☐	☐
8. worked with individual learners to design appropriate contracts	☐	☐	☐	☐	☐	☐
9. provided a copy of the signed contract for both the learner and the instructor	☐	☐	☐	☐	☐	☐
10. reviewed contracts with learners on a regular basis and made any necessary adjustments	☐	☐	☐	☐	☐	☐
If grading contracts were used, the instructor:						
11. identified the relative weight ranges for evaluation activities or the amount of work to be performed for each grade	☐	☐	☐	☐	☐	☐
12. provided copies of the signed contract for the instructor and the learner	☐	☐	☐	☐	☐	☐
In selecting the appropriate evaluators, the instructor:						
13. ensured that a variety of evaluators were involved through such strategies as:						
a. self-evaluation	☐	☐	☐	☐	☐	☐
b. peer evaluation	☐	☐	☐	☐	☐	☐
c. instructor-based evaluation	☐	☐	☐	☐	☐	☐
d. expert worker/supervisor evaluation	☐	☐	☐	☐	☐	☐
In developing each written test, the instructor:						
14. identified appropriate types of test items based on the performance objectives	☐	☐	☐	☐	☐	☐
15. developed each test item according to the guidelines for constructing that type of item	☐	☐	☐	☐	☐	☐
16. developed a test that was valid, reliable, and usable	☐	☐	☐	☐	☐	☐
17. provided clear, readable copies for everyone	☐	☐	☐	☐	☐	☐
18. provided full, clear, and simple directions for the whole test and for each type of test item	☐	☐	☐	☐	☐	☐
19. grouped the same kinds of test items together	☐	☐	☐	☐	☐	☐
20. included no more than three different types of test items	☐	☐	☐	☐	☐	☐
21. developed clear and unambiguous test items, with the guessing factor minimized	☐	☐	☐	☐	☐	☐
22. developed an appropriate scoring key	☐	☐	☐	☐	☐	☐

	N/A	None	Poor	Fair	Good	Excellent
In developing each performance test, the instructor:						
23. stated the performance objective fully and clearly	☐	☐	☐	☐	☐	☐
24. provided clear directions concerning the testing situation	☐	☐	☐	☐	☐	☐
25. laid out the checklist/rating scale so that it is clear and easy to use	☐	☐	☐	☐	☐	☐
26. included **all** essential criteria and **only** essential criteria	☐	☐	☐	☐	☐	☐
27. stated all items clearly	☐	☐	☐	☐	☐	☐
28. arranged all items in a logical sequence	☐	☐	☐	☐	☐	☐
29. ensured that the test was:						
a. appropriate for the type of performance involved	☐	☐	☐	☐	☐	☐
b. reasonable in length	☐	☐	☐	☐	☐	☐
In administering each test, the instructor:						
30. provided a comfortable testing environment	☐	☐	☐	☐	☐	☐
31. explained the purpose of the test prior to administering it	☐	☐	☐	☐	☐	☐
32. allowed sufficient time for the test to be completed by all or most learners	☐	☐	☐	☐	☐	☐
After administering each test, the instructor:						
33. reviewed the results and identified the following:						
a. learners' skill and knowledge areas that need to be strengthened	☐	☐	☐	☐	☐	☐
b. any necessary changes in instructional plans	☐	☐	☐	☐	☐	☐
In determining learners' grades, the instructor:						
34. informed learners of the basis and system for determining their grades	☐	☐	☐	☐	☐	☐
35. maintained complete and accurate records of learner performance	☐	☐	☐	☐	☐	☐
36. assigned grades that were consistent with the institution's grading system	☐	☐	☐	☐	☐	☐

Level of Performance: All items must receive N/A, GOOD, or EXCELLENT responses. If any item receives a NONE, POOR, or FAIR response, the instructor and resource person should meet to determine what additional activities the instructor needs to complete in order to reach competency in the weak area(s).

NOTES

ABOUT USING THE NATIONAL CENTER'S PBTE MODULES

Organization

Each module is designed to help you gain competency in a particular skill area considered important to teaching success. A module is made up of a series of learning experiences, some providing background information, some providing practice experiences, and others combining these two functions. Completing these experiences should **enable** you to achieve the **terminal** objective in the final learning experience. The final experience in each module always requires you to demonstrate the skill in an actual teaching situation when you are an intern, a student teacher, an inservice teacher, or occupational trainer.

Procedures

Modules are designed to allow you to individualize your teacher education program. You need to take only those modules covering skills that you do not already possess. Similarly, you need not complete any learning experience within a module if you already have the skill needed to complete it. Therefore, before taking any module, you should carefully review (1) the introduction, (2) the objectives listed on p. 4, (3) the overviews preceding each learning experience, and (4) the final experience. After comparing your present needs and competencies with the information you have read in these sections, you should be ready to make one of the following decisions:

- That you do not have the competencies indicated and should complete the entire module
- That you are competent in one or more of the enabling objectives leading to the final learning experience and, thus, can omit those learning experiences
- That you are already competent in this area and are ready to complete the final learning experience in order to "test out"
- That the module is inappropriate to your needs at this time

When you are ready to complete the final learning experience **and** have access to an actual teaching situation, make the necessary arrangements with your resource person. If you do not complete the final experience successfully, meet with your resource person and arrange to (1) repeat the experience or (2) complete (or review) previous sections of the module or other related activities suggested by your resource person before attempting to repeat the final experience.

Options for recycling are also available in each of the learning experiences preceding the final experience. Any time you do not meet the minimum level of performance required to meet an objective, you and your resource person may meet to select activities to help you reach competency. This could involve (1) completing parts of the module previously skipped, (2) repeating activities, (3) reading supplementary resources or completing additional activities suggested by the resource person, (4) designing your own learning experience, or (5) completing some other activity suggested by you or your resource person.

Terminology

Actual Teaching Situation: A situation in which you are actually working with and responsible for teaching secondary or postsecondary vocational students or other occupational trainees. An intern, a student teacher, an inservice teacher, or other occupational trainer would be functioning in an actual teaching situation. If you do **not** have access to an actual teaching situation when you are taking the module, you can complete the module **up to** the final learning experience. You would then complete the final learning experience later (i.e., when you have access to an actual teaching situation).

Alternate Activity or Feedback: An item that may **substitute** for required items that, due to special circumstances, you are unable to complete.

Occupational Specialty: A specific area of preparation within a vocational service area (e.g., the service area Trade and Industrial Education includes occupational specialties such as automobile mechanics, welding, and electricity.

Optional Activity or Feedback: An item that is not required but that is designed to **supplement** and enrich the required items in a learning experience.

Resource Person: The person in charge of your educational program (e.g., the professor, instructor, administrator, instructional supervisor, cooperating/supervising/classroom teacher, or training supervisor who is guiding you in completing this module).

Student: The person who is receiving occupational instruction in a secondary, postsecondary, or other training program.

Vocational Service Area: A major vocational field: agricultural education, business and office education, marketing and distributive education, health occupations education, home economics education, industrial arts education, technical education, or trade and industrial education.

You or the Teacher/Instructor: The person who is completing the module.

Levels of Performance for Final Assessment

N/A: The criterion was not met because it was **not applicable** to the situation.

None: No attempt was made to meet the criterion, although it was relevant.

Poor: The teacher is unable to perform this skill or has only **very limited ability** to perform it.

Fair: The teacher is unable to perform this skill in an acceptable manner but has **some ability** to perform it.

Good: The teacher is able to perform this skill in an **effective** manner.

Excellent: The teacher is able to perform this skill in a **very effective** manner.

Titles of the National Center's Performance-Based Teacher Education Modules

Category A: Program Planning, Development, and Evaluation
- A-1 Prepare for a Community Survey
- A-2 Conduct a Community Survey
- A-3 Report the Findings of a Community Survey
- A-4 Organize an Occupational Advisory Committee
- A-5 Maintain an Occupational Advisory Committee
- A-6 Develop Program Goals and Objectives
- A-7 Conduct an Occupational Analysis
- A-8 Develop a Course of Study
- A-9 Develop Long-Range Program Plans
- A-10 Conduct a Student Follow-Up Study
- A-11 Evaluate Your Vocational Program

Category B: Instructional Planning
- B-1 Determine Needs and Interests of Students
- B-2 Develop Student Performance Objectives
- B-3 Develop a Unit of Instruction
- B-4 Develop a Lesson Plan
- B-5 Select Student Instructional Materials
- B-6 Prepare Teacher-Made Instructional Materials

Category C: Instructional Execution
- C-1 Direct Field Trips
- C-2 Conduct Group Discussions, Panel Discussions, and Symposiums
- C-3 Employ Brainstorming, Buzz Group, and Question Box Techniques
- C-4 Direct Students in Instructing Other Students
- C-5 Employ Simulation Techniques
- C-6 Guide Student Study
- C-7 Direct Student Laboratory Experience
- C-8 Direct Students in Applying Problem-Solving Techniques
- C-9 Employ the Project Method
- C-10 Introduce a Lesson
- C-11 Summarize a Lesson
- C-12 Employ Oral Questioning Techniques
- C-13 Employ Reinforcement Techniques
- C-14 Provide Instruction for Slower and More Capable Learners
- C-15 Present an Illustrated Talk
- C-16 Demonstrate a Manipulative Skill
- C-17 Demonstrate a Concept or Principle
- C-18 Individualize Instruction
- C-19 Employ the Team Teaching Approach
- C-20 Use Subject Matter Experts to Present Information
- C-21 Prepare Bulletin Boards and Exhibits
- C-22 Present Information with Models, Real Objects, and Flannel Boards
- C-23 Present Information with Overhead and Opaque Materials
- C-24 Present Information with Filmstrips and Slides
- C-25 Present Information with Films
- C-26 Present Information with Audio Recordings
- C-27 Present Information with Televised and Videotaped Materials
- C-28 Employ Programmed Instruction
- C-29 Present Information with the Chalkboard and Flip Chart

Category D: Instructional Evaluation
- D-1 Establish Student Performance Criteria
- D-2 Assess Student Performance: Knowledge
- D-3 Assess Student Performance: Attitudes
- D-4 Assess Student Performance: Skills
- D-5 Determine Student Grades
- D-6 Evaluate Your Instructional Effectiveness

Category E: Instructional Management
- E-1 Project Instructional Resource Needs
- E-2 Manage Your Budgeting and Reporting Responsibilities
- E-3 Arrange for Improvement of Your Vocational Facilities
- E-4 Maintain a Filing System
- E-5 Provide for Student Safety
- E-6 Provide for the First Aid Needs of Students
- E-7 Assist Students in Developing Self-Discipline
- E-8 Organize the Vocational Laboratory
- E-9 Manage the Vocational Laboratory
- E-10 Combat Problems of Student Chemical Use

Category F: Guidance
- F-1 Gather Student Data Using Formal Data-Collection Techniques
- F-2 Gather Student Data Through Personal Contacts
- F-3 Use Conferences to Help Meet Student Needs
- F-4 Provide Information on Educational and Career Opportunities
- F-5 Assist Students in Applying for Employment or Further Education

Category G: School-Community Relations
- G-1 Develop a School-Community Relations Plan for Your Vocational Program
- G-2 Give Presentations to Promote Your Vocational Program
- G-3 Develop Brochures to Promote Your Vocational Program
- G-4 Prepare Displays to Promote Your Vocational Program
- G-5 Prepare News Releases and Articles Concerning Your Vocational Program
- G-6 Arrange for Television and Radio Presentations Concerning Your Vocational Program
- G-7 Conduct an Open House
- G-8 Work with Members of the Community
- G-9 Work with State and Local Educators
- G-10 Obtain Feedback about Your Vocational Program

Category H: Vocational Student Organization
- H-1 Develop a Personal Philosophy Concerning Vocational Student Organizations
- H-2 Establish a Vocational Student Organization
- H-3 Prepare Vocational Student Organization Members for Leadership Roles
- H-4 Assist Vocational Student Organization Members in Developing and Financing a Yearly Program of Activities
- H-5 Supervise Activities of the Vocational Student Organization
- H-6 Guide Participation in Vocational Student Organization Contests

Category I: Professional Role and Development
- I-1 Keep Up-to-date Professionally
- I-2 Serve Your Teaching Profession
- I-3 Develop an Active Personal Philosophy of Education
- I-4 Serve the School and Community
- I-5 Obtain a Suitable Teaching Position
- I-6 Provide Laboratory Experiences for Prospective Teachers
- I-7 Plan the Student Teaching Experience
- I-8 Supervise Student Teachers

Category J: Coordination of Cooperative Education
- J-1 Establish Guidelines for Your Cooperative Vocational Program
- J-2 Manage the Attendance, Transfers, and Terminations of Co-op Students
- J-3 Enroll Students in Your Co-op Program
- J-4 Secure Training Stations for Your Co-op Program
- J-5 Place Co-op Students on the Job
- J-6 Develop the Training Ability of On-the-Job Instructors
- J-7 Coordinate On-the-Job Instruction
- J-8 Evaluate Co-op Students' On-the-Job Performance
- J-9 Prepare for Students' Related Instruction
- J-10 Supervise an Employer-Employee Appreciation Event

Category K: Implementing Competency-Based Education (CBE)
- K-1 Prepare Yourself for CBE
- K-2 Organize the Content for a CBE Program
- K-3 Organize Your Class and Lab to Install CBE
- K-4 Provide Instructional Materials for CBE
- K-5 Manage the Daily Routines of Your CBE Program
- K-6 Guide Your Students Through the CBE Program

Category L: Serving Students with Special/Exceptional Needs
- L-1 Prepare Yourself to Serve Exceptional Students
- L-2 Identify and Diagnose Exceptional Students
- L-3 Plan Instruction for Exceptional Students
- L-4 Provide Appropriate Instructional Materials for Exceptional Students
- L-5 Modify the Learning Environment for Exceptional Students
- L-6 Promote Peer Acceptance of Exceptional Students
- L-7 Use Instructional Techniques to Meet the Needs of Exceptional Students
- L-8 Improve Your Communication Skills
- L-9 Assess the Progress of Exceptional Students
- L-10 Counsel Exceptional Students with Personal-Social Problems
- L-11 Assist Exceptional Students in Developing Career Planning Skills
- L-12 Prepare Exceptional Students for Employability
- L-13 Promote Your Vocational Program with Exceptional Students

Category M: Assisting Students in Improving Their Basic Skills
- M-1 Assist Students in Achieving Basic Reading Skills
- M-2 Assist Students in Developing Technical Reading Skills
- M-3 Assist Students in Improving Their Writing Skills
- M-4 Assist Students in Improving Their Oral Communication Skills
- M-5 Assist Students in Improving Their Math Skills
- M-6 Assist Students in Improving Their Survival Skills

Category N: Teaching Adults
- N-1 Prepare to Work with Adult Learners
- N-2 Market an Adult Education Program
- N-3 Determine Individual Training Needs
- N-4 Plan Instruction for Adults
- N-5 Manage the Adult Instructional Process
- N-6 Evaluate the Performance of Adults

RELATED PUBLICATIONS

Student Guide to Using Performance-Based Teacher Education Materials
Resource Person Guide to Using Performance-Based Teacher Education Materials
Guide to the Implementation of Performance-Based Teacher Education
Performance-Based Teacher Education: The State of the Art, General Education and Vocational Education

For information regarding availability and prices of these materials contact—AAVIM, American Association for Vocational Instructional Materials, 120 Driftmier Engineering Center, University of Georgia, Athens, Georgia 30602, (404) 542-2586

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